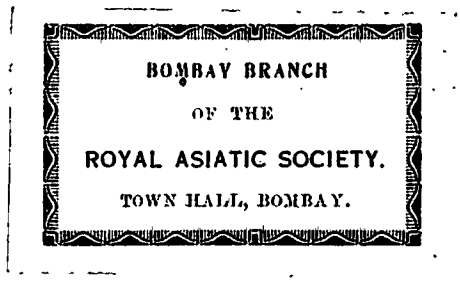
Annual Report of
Sanitary Commr. &c.
for the Government of
Bombay
1878 and 1879.

00133383



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FIFTEENTH ANNUAL REPORT

OF THE

Sanitary Commissioner for the Government of Bombay,

1878, & 1879

WITH

13338

APPENDICES.

Bombay:
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ANNUAL SANITARY REPORT FOR 1878.

INTRODUCTORY.

1. UNDER the instructions marginally quoted there are henceforth discontinued from this Annual Report those sections which relate to Meteorology, European Troops, Native Troops, and Jails. For Meteorology there is a special reporter, who submits his observations to the head of his own Department in Calcutta; for European Troops there is one report by the Surgeon General of the Presidency, and another by the Sanitary Commissioner with the Government of India: for Native Troops there is a special report by the Surgeon General, Indian Medical Department; and for Jails there is one by the Inspector General of Prisons. Under these circumstances the compiling of other reports in this office was clearly a work of supererogation. In directing the discontinuance of the sections above named the Government of India in their letter quoted say: "In making the proposed alteration in the Report it is not intended that there should be any change in the relation in which the Sanitary Commissioner of Bombay is to stand to the Troops, and Military Cantonments, for he will still report on '*Sanitary Works, Military.*' His practical work of recommending improvements, of inspecting and making proposals for the removal of sanitary defects in Cantonments will continue as heretofore."

Letter from the Right Honourable the Secretary of State for India. Statistics and Commerce. No. 118. June 27th, 1878.
Government of India letter Home Department. Sanitary. No. 255, September 4th, 1878.
Government of Bombay Resolution, General Department, No. 2746, September 19th, 1878.

2. On the 1st May 1878 I returned from a two years' furlough, and on the 8th I resumed charge of the Department from Mr. Hewlett who had acted for me during my absence. During this officer's tenure of office he was himself obliged to take short leave on medical certificate. He went home on the 7th January 1878 and returned on the 8th April, and during his absence the duties were carried on by Dr. Nolan, the Deputy Sanitary Commissioner in the Northern Deccan.

3. The following were the departmental changes during the year under report. In the Northern Deccan Dr. Nolan went home on sick leave on the 15th September and Dr. Bruce, the Civil Surgeon of Poona, took charge of the office until the 18th October, when Dr. Channer was appointed to act. In the Southern Deccan Dr. Wall went home on sick leave on the 6th February, and Dr. Bainbridge acted for him until the 23rd April, when he was relieved by Dr. Greany. In the Konkan Dr. McRury handed over charge of his office to Dr. Barren, and was transferred to Sind, and Dr. Barren having acted from the 11th April to the 19th June, was relieved by Dr. Parker. In Sind Dr. Leggatt resigned the service on the 31st January, and Dr. Hopkins had charge of the office until the 14th April, when he was relieved by Dr. McRury. These constant changes are inevitable in Indian service, and, as may be imagined, they add to the ordinary difficulties which here beset all work, whether administrative or executive.

4. By Government Resolution No. 3804, dated 22nd October 1878, Assistant Surgeon DeSouza joined the department as travelling analyst, and since joining, he has been constantly engaged on various examinations. An appointment of the kind was much needed, and his services will have an increasing value.

SECTION I.

GENERAL POPULATION AND VITAL STATISTICS.

Births.

Number of Births.

5. The births registered in 1878 were 243,253, and in 1877 they were 311,661, so the total for the year is less by 68,408 than it was in the preceding year. The rate per 1,000 of population was 15·04 against 19·26 in 1877. The ratio of male births to males living was 15·25, and for females it was 14·81. The proportion of males to females for the year was as 52·97 to 47·03, so for every 100 male births there are 88·79 female. The ratio of boys born alive has, in each year, exceeded that of girls. These details are all shown in the following table :—

Years.	Number of Births Recorded.			Rate per 1,000 of Population.			In every 100 born there were		For every 100 Male Births the Females were.
	Males.	Females.	Total.	Males.	Females	Total.	Males.	Females.	
1873	152,520	137,799	290,319	18·03	17·84	17·94	52·53	47·47	90·35
1874	174,966	157,842	332,808	20·69	20·44	20·57	53·77	46·23	90·21
1875	178,892	161,937	340,829	21·15	20·97	21·06	52·49	47·51	90·52
1876	181,872	163,612	345,484	21·50	21·18	21·35	52·64	47·36	89·96
1877	164,262	147,399	311,661	19·40	19·06	19·26	52·75	47·25	89·73
Mean	170,502	153,718	324,220	20·15	19·90	20·04	52·84	47·16	90·15
1878	128,848	114,405	243,253	15·25	14·81	15·04	52·97	47·03	88·79

Birth-rate by Districts.

6. The number of births in each district and the ratios per 1,000 are those subjoined, and they contrasted with the numbers and ratios for 1877. The highest rate (24·65) is at Surat, and the lowest (3·42) at Kaládgi. In 21 out of the 24 districts the recorded rates for 1878 were less than those for 1877; in Bombay City, Kolába, and Thar and Párkar, they were higher :—

No.	Registration Districts.	Number of Births Registered.		Rate per 1,000 of Population.	
		1878.	1877.	1878.	1877.
1	Surat	14,965	15,052	24·65	24·79
2	Násik	15,431	17,670	22·46	25·71
3	Bombay City	13,896	13,720	21·56	21·29
4	Kánara...	8,057	11,731	20·22	29 44
5	Kaira	15,728	19,995	20·09	25·53
6	Khándesh	20,374	23,364	19·81	22·71
7	Ahmedabad	16,225	18,822	19·55	22·68
8	Thána	16,464	18,804	19·43	22·19
9	Thar and Párkar	3,439	3,345	19·02	18·51
10	Panch Mahals	4,464	5,618	18·54	23·34
11	Broach	6,271	7,275	17·90	20·76
12	Sátára	18,725	23,664	17·64	22·30
13	Kolába	6,043	5,616	17·24	16·03
14	Ahmednagar	12,113	16,808	15·64	21·71
15	Ratnágiri	13,804	15,710	13·55	15·42
16	Poona	11,740	15,152	12·94	16·70
17	Belgaum	11,773	22,425	12·54	23·88
18	Dhárwár	9,966	21,203	10·08	21·46
19	Sholápur	6,769	9,155	9·42	12·75
20	Kurrachee	3,332	3,793	7·87	8·95
21	Upper Sind Frontier	671	722	7·48	8·02
22	Hyderabad	5,078	5,249	7·03	7·27
23	Shikárpur	5,130	5,301	6·61	6 83
24	Kaládgi	2,795	11,467	3·42	14·05
	Total for the year. ...	243,253	311,661	15·04	19·26

Birth-rates in Towns.

7. The following table gives the birth-rates for the principal towns, and their utter worthlessness is seen by looking at the corresponding death-rates. Look at Násik with 17

births per 1,000 against 78 deaths; look at Sholápur with 11 and 83; at Ahmednagar with 8 and 64; at Godra with 6 and 90; and at Kaládgi with 3 and 41 :—

Names of Towns.	Population.	Birth-rate per 1,000.	Death-rate per 1,000.
Ahmedabad...	116,873	40·08	72·31
Jacobabad	5,205	32·66	52·76
Hyderabad	35,272	32·12	52·22
Bombay City	644,405	21·56	41·41
Sátára	24,484	20·99	48·93
Umarkot	3,999	20·75	28·76
Shikárpur	38,107	20·36	30·28
Kárwár	13,263	20·13	31·74
Násik	22,436	17·00	78·40
Broach	36,932	16·80	38·44
Belgaum	26,947	14·66	51·66
Alíbág	5,473	12·24	42·02
Surat	107,149	11·92	24·58
Sholápur	53,403	11·10	83·47
Kurrachee	55,326	10·86	21·82
Dhulia	12,489	9·69	27·62
Thána	14,299	9·30	28·12
Vengurla	14,996	8·60	17·93
Ahmednagar	32,841	8·25	64·67
Dhárwár	27,136	6·60	28·75
Godra	10,641	6·40	90·26
Poona City	90,436	6·07	39·53
Kaira	12,681	5·05	8·51
Kaládgi	6,592	3·50	41·72

Nor is it better in the Cantonments. At Ahmedabad the respective rates are 49·92 and 76·47: at Ahmednagar there are 8·28 and 38·77; in Belgaum 6·38 and 78·23; in Poona and Kirkee 4·71 and 28·71; in Devláli 3·36 and 32·46.

By months.

8. The maximum number of births was in October, and the minimum in February. In the subjoined table they are shown by months for each year since 1873 :—

Years.	January	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1873	20,915	17,884	20,990	21,017	23,453	24,700	27,714	26,440	26,481	27,916	27,153	25,656	290,319
1874	24,229	21,405	24,631	24,712	26,643	29,758	30,888	31,892	30,353	31,748	29,349	27,200	332,808
1875	26,202	24,469	29,884	29,852	29,914	29,052	31,262	29,406	28,438	27,455	28,583	26,312	340,829
1876	24,304	23,914	28,007	27,482	28,645	30,106	33,325	31,338	31,220	30,392	29,729	27,022	345,484
1877	24,386	22,446	27,622	27,756	30,499	28,826	29,490	25,895	24,924	24,480	23,311	22,026	311,661
Mean	24,007	22,024	26,227	26,164	27,831	28,488	30,536	28,994	28,283	28,398	27,625	25,643	324,220
1878	19,835	17,486	18,302	18,084	18,935	17,539	20,958	22,412	22,375	23,179	22,774	21,394	243,253

DEATHS.

Number of Deaths.

9. The deaths registered in 1878 were 532,951 and in 1877 there were 627,708, so for this year the total is less by 94,757. The ratio per 1,000 of population was 32·94 against 38·79 in 1877. The ratio of males dying to males living was 34·05, and for females it was 31·72. The following table shows the population by the census of 1872, the number of deaths in 1878 and the ratio of deaths to population in each Division of the Presidency :—

Divisions.	Population.			Deaths.			Ratio per 1,000 of Population.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
North Deccan	2,114,410	2,000,792	4,115,202	79,335	68,249	147,584	37·52	34·11	35·87
South Deccan	1,941,920	1,861,906	3,803,826	79,591	72,063	151,654	40·98	38·70	39·87
Konkan	1,714,472	1,545,304	3,259,776	48,464	41,754	90,218	28·27	27·03	27·67
Gujarát	1,470,962	1,339,560	2,810,522	63,439	50,988	114,427	43·13	38·06	40·71
.. .. ..	1,216,208	976,207	2,192,415	17,168	11,900	29,068	14·12	12·19	13·26
Total ..	8,457,972	7,723,769	16,181,741	287,997	244,954	532,951	34·05	31·72	32·94

Deaths by Districts.

10. The total of deaths for each District and the several ratios per 1,000 are shown in sequence in the following table, and they range from 75·65 in the Panch Maháls Districts to

8·06 in the Upper Sind Frontier. The highest mortality is returned from the Belgaum District (44,208) and the lowest (726) from the Upper Sind Frontier :—

Districts.	Number of Deaths.			Ratio per 1,000 of Population.		
	Males.	Females.	Total.	Males.	Females.	Total.
Panch Mahâls	10,884	7,330	18,214	86·17	64·05	75·65
Belgaum	23,299	20,909	44,208	48·65	45·47	47·08
Broach	8,031	7,177	15,208	44·00	42·76	43·41
Kánara	9,264	7,978	17,242	44·88	41·55	43·27
Dhárwár	21,853	20,512	42,365	43·18	42·55	42·90
Bombay City	14,460	12,226	26,686	36·17	49·96	41·41
Ahmedabad	18,342	15,963	34,305	41.80	40·83	41·34
Kaira	17,921	12,969	30,890	42·75	35·66	39·46
Násik	14,481	12,439	26,920	41·09	37·14	39·17
Sátára	21,694	19,178	40,872	40·22	36·76	38·52
Sholápur	14,488	12,160	26,648	39·23	34·87	37·11
Ahmednagar	14,938	13,017	27,955	37·78	34·38	36·12
Khándesh	19,334	17,120	36,454	36·44	34·38	35·44
Poona	16,094	13,513	29,607	34·48	30·68	32·63
Kaládgi	12,745	11,464	24,209	30·52	28·77	29·67
Surat	8,261	7,549	15,810	27·15	24·92	26·04
Thána	11,488	9,474	20,962	26·15	23·16	24·74
Thar and Párkar	2,106	1,646	3,752	20·39	21·24	20·75
Kolába	3,504	3,161	6,665	19·68	18·34	19·02
Ratnágiri	9,748	8,915	18,663	19·85	16·88	18·34
Kurrachee	4,413	2,862	7,275	18·37	15·61	17·18
Hydèrabad	5,747	4,017	9,764	14·45	12·39	13·52
Shikárpur	4,462	3,089	7,551	10·51	8·78	9·72
Upper Sind Frontier	440	286	726	8·71	7·24	8·06
Total ...	287,997	244,954	532,951	34·05	31·72	32·94

It will be seen from the above table that the death-rate among males exceeds that amongst females in every District, except Bombay City and Thar and Párkar, where the respective rates were 36·17 and 20·39 against 49·96 and 21·24. This difference for the City of Bombay has been recorded for the last two years.

Death-rate. By months.

11. The following table shows the ratio of mortality per 1,000 of population by Districts in each month of 1878 as contrasted with 1877 :—

Districts.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Khándesh	1877	2·99	2·44	2·56	2·53	2·07	1·35	1·90	3·08	1·97	1·40	1·52	1·34	25·16
	1878	1·35	1·13	1·50	1·94	2·36	2·62	4·11	8·47	5·12	2·97	2·10	1·77	35·44
Násik	1877	3·17	2·45	3·18	3·00	2·68	2·25	3·15	3·83	3·40	2·90	2·90	2·76	35·59
	1878	3·28	2·94	2·83	2·26	2·18	2·11	2·83	4·40	5·84	4·22	3·20	3·09	39·17
Ahmednagar	1877	2·17	1·97	2·83	2·76	3·08	3·26	4·38	4·27	4·78	4·30	3·49	2·62	39·94
	1878	2·69	2·07	2·10	1·94	2·22	2·52	4·44	4·81	4·41	3·93	2·69	2·29	36·12
Poona	1877	2·10	1·78	2·63	2·90	3·30	2·91	3·79	3·42	2·76	2·86	2·79	2·71	33·96
	1878	2·62	1·73	1·61	2·07	2·66	3·90	4·11	4·23	3·48	2·63	1·86	1·72	32·63
Sholápur	1877	1·85	1·96	1·97	2·20	2·94	3·46	4·36	6·66	8·02	6·33	6·04	3·00	48·81
	1878	2·11	1·30	1·54	1·76	4·10	3·01	4·15	3·80	3·75	3·86	3·93	3·81	37·11
Sátára	1877	1·71	1·56	2·54	4·53	4·61	4·95	5·86	6·19	5·18	4·78	4·07	3·04	49·04
	1878	2·46	1·59	1·72	1·85	3·39	6·40	5·29	4·19	3·92	3·31	2·34	2·06	38·52
Belgaum	1877	4·00	3·84	5·74	5·24	6·65	7·30	8·34	9·86	8·28	6·06	4·80	4·71	74·83
	1878	4·47	3·01	3·15	6·41	6·46	4·45	3·62	3·78	3·33	2·89	2·71	2·80	47·08
Dhárwár	1877	4·59	5·20	5·90	5·24	5·42	6·02	8·13	10·70	10·88	8·85	7·26	6·70	84·87
	1878	5·56	3·46	3·03	3·46	3·88	3·60	3·38	4·02	3·10	2·58	3·30	3·54	42·90
Kaládgi	1877	2·57	3·01	4·36	6·21	7·48	7·94	10·21	11·95	14·17	13·33	12·79	7·79	101·77
	1878	3·73	1·81	1·62	2·25	3·76	2·37	2·45	2·11	2·23	2·52	2·62	2·19	29·67
Kánara	1877	3·69	2·91	4·40	3·93	3·35	3·13	4·74	6·36	3·29	5·35	4·91	4·55	54·12
	1878	5·17	3·97	3·57	3·29	3·12	2·85	3·51	4·22	3·82	3·22	3·30	3·24	43·27
Ratnágiri	1877	1·37	1·28	1·39	1·53	1·38	2·26	3·06	2·40	1·83	1·39	1·36	1·38	20·89
	1878	1·56	1·37	1·51	1·50	1·33	1·19	1·70	1·73	1·60	1·46	1·57	1·79	18·31
Kolába	1877	1·27	0·94	1·56	1·31	1·30	2·66	2·11	2·12	1·27	0·94	1·09	0·96	17·85
	1878	1·47	1·13	1·16	1·33	1·09	2·05	2·37	2·29	1·98	1·13	1·37	1·65	19·02
Bombay City	1877	3·19	3·46	4·66	5·36	5·47	5·17	4·29	4·50	4·47	4·45	3·37	3·52	51·55
	1878	3·61	3·34	3·73	3·36	3·61	2·97	3·31	3·68	3·62	3·73	3·35	3·11	41·41
Thána	1877	1·79	1·71	1·88	1·96	2·79	2·42	2·64	2·80	2·27	2·06	2·37	3·14	27·86
	1878	3·06	2·32	1·77	1·75	1·73	1·80	2·53	2·19	2·02	1·85	1·83	1·90	24·74
Surat	1877	2·43	2·36	3·23	2·65	2·03	1·74	1·85	2·29	1·84	1·67	1·68	1·45	25·24
	1878	1·84	1·56	1·65	1·95	1·86	2·07	2·14	2·38	2·33	2·57	2·99	2·75	26·04
Broach	1877	1·34	1·73	2·62	2·63	2·32	1·53	1·73	1·52	1·53	1·80	2·05	1·43	22·12
	1878	1·45	1·69	2·38	2·76	2·97	2·97	2·80	3·49	4·28	5·82	7·59	5·21	43·41
Kaira	1877	1·45	1·30	1·76	1·83	1·68	1·48	1·61	1·49	1·48	1·77	2·05	1·77	20·19
	1878	1·80	1·77	3·77	3·84	2·77	2·48	2·64	3·61	3·97	4·72	5·09	2·99	39·46
Panch Mahâls	1877	1·62	0·97	1·52	1·28	0·96	1·10	1·32	1.05	1·03	0·85	1·57	1·50	14·77
	1878	1·18	1·12	2·03	5·81	9·19	12·23	10·77	12·65	9·60	4·76	4·10	2·22	75·66
Ahmedabad	1877	1·71	1·51	2·02	2·04	1·86	1·45	1·35	1·29	1·42	1·68	2·17	2·00	20·50
	1878	2·04	2·11	2·98	3·40	3·59	2·78	2·29	3·08	3·56	5·48	6·03	4·02	41·35
Kurrachee	1877	1·89	1·77	1·63	1·36	1·27	1·07	0·97	1·00	0·93	1·36	1·42	1·73	16·44
	1878	1·98	1·81	1·65	1·18	0·98	0·79	0·87	1·01	1·38	1·51	1·96	2·06	17·18
Hyderabad	1877	1·46	1·40	1·49	1·12	0·95	0·70	0·64	0·71	0·74	0·85	0·97	1·17	12·20
	1878	1·16	1·23	0·97	0·78	0·68	0·63	0·64	0·59	1·04	1·70	2·08	2·03	13·52
Thar and Párkar	1877	0·99	1·37	1·36	1·48	1·37	0·84	0·79	0·66	0·92	0·87	1·06	2·15	13·88
	1878	2·30	2·19	1·81	1·74	1·28	0·96	0·96	2·02	2·31	1·96	1·56	1·66	20·75
Shikárpur	1877	1·16	0·88	0·88	0·80	0·75	0·61	0·65	0·61	0·66	0·87	0·85	0·83	9·55
	1878	0·77	0·76	0·61	0·64	0·67	0·63	0·76	0·51	0·81	1·10	1·39	1·97	9·72
Upper Sind Frontier	1877	0·96	0·86	0·91	0·66	0·78	0·57	0·59	0·67	0·44	0·53	0·52	0·62	8·10
	1878	0·71	0·59	0·55	0·58	0·51	0·51	0·61	0·51	0·85	0·85	1·01	0·79	8·06
Total	1877	2·30	2·19	2·83	2·96	3·12	3·16	3·19	4·34	4·17	3·66	3·41	2·85	38·79
	1878	2·58	1·97	2·10	2·45	2·82	2·83	3·05	3·52	3·24	2·98	2·89	2·51	32·94

Khándesh.

In Khándesh the lowest mortality occurred in February when 1,163 deaths were reported; it rose slightly in March and the maximum was in August when 8,722 deaths were recorded; of these deaths 3,356 were due to cholera, and 3,905 to fever: from September the rate began to fall and continued to do so until the end of the year. The annual rate of recorded mortality for Khándesh is 35·44 per 1,000 of population.

Násik.

In the Násik Collectorate the minimum mortality was in June when 1,464 deaths were registered, and the maximum for the year was in September when 4,031 deaths were registered; of these deaths 499 where due to cholera. The rate then continued to fall until the end of the year. The annual death-rate in the Collectorate was 39·17 per 1,000 against 35·59 for the previous year.

Ahmednagar.

In the Ahmednagar Collectorate the lowest mortality was in April when 1,502 deaths were recorded, and the highest in August when 3,726 persons died. Of these deaths 2,435 were due to cholera. The ratio per 1,000 of population was 3·82 less during the whole year than in 1877.

Poona.

In the Poona Collectorate there were 2,378 deaths in January and 1,574 in February. In March there were 1,458, and this was the minimum for the year. From April to August the figures showed a steady increase month by month. It was in this last-named month that the maximum of 3,841 deaths was recorded; during the remainder of the year there was a steady fall month by month. The annual death-rate in this Collectorate was 32·63 per 1,000 against 33·96 of the previous year.

Sholápur.

In the Sholápur Collectorate the lowest mortality was in February when there were 926 deaths; in March and April there was a gradual increase; in May, however, there was a sudden rise, the registered mortality for that month amounting to 2,943; in June it fell slightly, but in the following month it rose to the maximum of the year. There were then 2,983 deaths, of which 909 were from cholera. The annual death-rate in this Collectorate was 37·11 against 48·81 per 1,000 for the previous year.

Sátára.

In the Sátára Collectorate (in January) there were 2,611 deaths and 1,687 in February; this last number was the minimum for the year; the rate then began to rise, the maximum being recorded in June, when 6,785 deaths were registered; of these deaths 3,157 were due to cholera and 2,784 to fever; the rate then continued to fall until the end of the year. The annual death-rate in this Collecterate was 38·52 per 1,000 against 49·04 in the previous year.

Belgaum.

In the Belgaum Collectorate (during January and February) the recorded deaths were 4,194 and 2,831 respectively, the latter being the minimum for the year. In March there was a slight increase of 127 over the previous month. In April, however, there was a sudden rise, the registered mortality for that month amounting to 6,018. The death-rate during May, though in itself very high, showed an excess of only 46 deaths over the previous month, and was the maximum for the year; the mortality in each succeeding month continued to fall. The annual death-rate in this Collectorate was 47·08 against 74·83 over the previous year.

Dhárwár.

In the Dhárwár Collectorate the total mortality in January was 5,495, and this was the maximum for the year; in February and March there was a great fall in the number of deaths; in April the mortality again rose, the deaths registered during the month being 3,419 against 2,991 for the previous month. A similar increase also took place in May, when 2,839 deaths were registered; in June and July there was a slight fall. In August the mortality again rose, the deaths registered during the month being 3,974 against 3,336 for the preceding month. In September 3,077 persons

died, in October 2,544, in November 3,263, and in December 3,462. The minimum for the year was recorded in October. The annual death-rate in this Collectorate, per 1,000 of population, was 42·90.

Kaládgi. In the Kaládgi Collectorate the minimum mortality was recorded in March, when 1,323 deaths were registered, the maximum taking place in May, when 3,070 persons died; 987 of these deaths were due to cholera. The mortality in each succeeding month continued to fall. The annual death-rate in this Collectorate was 29·67 per 1,000 against 101·77 of the preceding year.

Kánara. In the Kánara Collectorate the lowest mortality was in June, when 1,136 deaths were registered, and the highest was in January, when there were 2,060. The annual rate per 1,000 of population was 43·77 against 54·12 of the previous year.

Ratnágiri. In the Ratnágiri Collectorate the lowest mortality occurred in June, when 1,208 deaths took place, and the highest in December, when 1,827 deaths were recorded. The annual death-rate in this Collectorate was 18·31 per 1,000, as compared with 20·89 for the previous year.

Kolába. In the Kolába Collectorate the lowest mortality took place in May, when 386 deaths were reported, the maximum taking place in July, when 832 deaths occurred; 206 of these deaths were due to cholera. The annual rate per 1,000 of population was 19·02 against 17·85 of the previous year.

Bombay City. In the City of Bombay the lowest mortality occurred in June, when 1,915 deaths were recorded, and the highest in March, when 2,405 deaths were registered. The annual rate being 41·41 per 1,000 against 51·55 of the previous year.

Thána. In the Thána Collectorate the minimum mortality was recorded in May, when 1,469 deaths were reported; the maximum took place in January, when 2,592 deaths were registered. The annual rate per 1,000 of population was 24·74 against 27·86 of the previous year.

Surat. In the Surat Collectorate the lowest mortality took place in the month of February, when 947 deaths were registered, and the highest in November, when 1,814 deaths were recorded during the first six months of the year; the rate was below than that of the same period in 1877. The annual ratio per 1,000 in this Collectorate was 26·04 against 25·24 in the previous year.

Broach. In the Broach Collectorate the lowest mortality took place in January, when 509 deaths were registered; the maximum was in November, when 2,660 deaths occurred. The annual death-rate per 1,000 of population was 43·41 against 22·12 in 1877.

Kaira. In the Kaira Collectorate the lowest mortality took place in February, when 1,391 deaths were registered, and the highest in November, in which 3,987 persons died. The annual death-rate per 1,000 was 39·46 against 20·19 for the previous year.

Panch Maháls. In the Panch Maháls the lowest mortality took place in February, when 269 deaths were registered; the maximum was in August, when 3,045 deaths were recorded. The annual death-rate per 1,000 was 75·75 against 14·77 in the previous year.

Ahmedabad. In the Ahmedabad Collectorate the lowest mortality took place in January, when 1,695 deaths were registered, and the highest in November, when 5,000 persons died; 4,332 of these deaths were due to fever. The annual death-rate in this Collectorate was 41·34 against 20·50 of the previous year.

Kurrachee.

In the Kurrachee Collectorate the lowest mortality is recorded to have taken place in June, when 335 deaths were reported, and the highest in December, when 866 deaths were registered. The annual ratio per 1,000 in this Collectorate was 17·18 against 16·44 of the previous year.

Hyderabad.

In the Hyderabad Collectorate (in January, February and March) the number of deaths registered were respectively 840, 887 and 703; from April to August there was a considerable fall in the rate; 431 deaths were recorded in August, and this was the minimum for the year. From September till the end of the year the rate of mortality was much higher. The maximum for the year (1,499) was recorded in November. The annual death-rate per 1,000 was 13·52 against 10·19 of the previous year.

Thar and Párkar.

In Thar and Párkar, in July only 174 deaths (the minimum for the year) were registered; while the maximum mortality was returned in September (418.) The annual rate being 20·75 per 1,000 against 13·88 of the previous year.

Shikárpur.

In the Shikárpur Collectorate the minimum number of deaths for the year (397) was recorded in August, and the highest mortality for the year was reported in November (1,082).

Upper Sind Frontier.

The total recorded mortality for the year in the Upper Sind Frontier was 726 only. The highest number (91) was reported in November and lowest in May.

Deaths by ages.

12. The following table shows, for each district, the deaths, at the different age periods:—

Districts.	Under 1 year.			1 year and under 6.			6 and under 12.			12 and under 20			20 and under 30.			30 and under 40.			40 and under 50.			50 and under 60.			60 and upwards.			Total.	
	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.
Khándesh	5,973	5·80	16·38	10,981	10·67	30·12	2,671	2·59	7·33	1,814	1·76	4·98	3,310	3·22	9·08	2,659	2·59	7·30	2,600	2·53	7·13	2,987	2·94	8·20	3,459	3·36	9·49	36,454	35·44
Násik	3,477	5·06	12·92	5,099	7·42	18·94	2,688	3·91	9·99	2,422	3·52	9·00	3,236	4·71	12·02	2,682	3·90	9·96	2,225	3·24	8·26	2,469	3·59	9·17	2,622	3·81	9·74	26,920	39·17
Ahmednagar	2,979	3·85	10·66	4,660	6·01	16·67	1,855	2·40	6·63	1,525	1·97	5·45	3,527	4·56	12·62	2,855	3·70	10·21	3,083	3·98	11·03	3,607	4·66	12·91	3,864	4·99	13·82	27,955	36·12
Poona	1,835	2·02	6·20	4,394	4·84	14·83	2,191	2·41	7·40	1,973	2·18	6·66	3,439	3·79	11·62	3,768	4·15	12·73	3,560	3·92	12·02	3,819	4·21	12·92	4,628	5·10	15·62	29,607	32·63
Sholápur	1,218	1·70	4·57	4,055	5·62	15·22	2,245	3·13	8·42	1,474	2·07	5·53	3,012	4·20	11·30	3,318	4·62	12·45	3,297	4·60	12·37	3,950	5·50	14·82	4,079	5·62	15·32	26,648	37·11
Sátára	2,939	2·77	7·19	7,858	7·41	19·22	3,335	3·15	8·16	2,240	2·12	5·48	4,031	3·80	9·88	4,153	3·92	10·16	4,376	4·13	10·70	4,928	4·60	12·05	7,012	4·62	17·16	40,872	38·52
Belgaum	2,232	2·38	5·05	8,178	8·71	18·50	3,679	3·92	8·32	2,420	2·57	5·47	5,041	5·37	11·40	5,229	5·56	11·83	5,109	5·44	11·57	5,119	5·45	11·58	7,201	7·69	16·28	44,208	47·08
Dhárwár	2,600	2·62	6·14	7,509	7·60	17·72	3,316	3·36	7·83	2,533	2·56	5·98	4,946	5·01	11·68	4,721	4·78	11·14	5,041	5·09	11·90	5,834	5·95	13·77	5,865	5·93	13·84	42,365	42·90
Kaládgi	648	0·80	2·68	2,770	3·40	11·44	1,896	2·32	7·83	1,877	2·30	7·75	2,981	3·65	12·37	3,714	4·55	15·34	3,212	3·94	13·25	3,476	4·26	14·34	3,635	4·45	15·01	24,209	29·67
Kánara	1,965	4·93	11·40	1,932	4·85	11·20	845	2·12	4·91	1,226	3·08	7·11	2,775	6·96	16·09	2,403	6·03	13·93	2,007	5·04	11·64	1,959	4·92	11·37	2,130	5·35	12·35	17,242	43·27
Ratnágiri	923	0·96	4·95	1,815	1·78	9·72	991	0·97	5·31	1,112	1·09	5·95	2,245	2·20	12·03	2,119	2·06	11·35	2,069	2·03	11·09	2,766	2·70	14·82	4,623	4·53	24·77	18,663	18·31
Kolába	739	2·11	11·09	1,106	3·15	16·60	521	1·50	7·85	505	1·44	7·58	878	2·55	13·17	720	2·03	10·80	729	2·08	10·94	731	2·08	10·97	736	2·09	11·00	6,665	19·02
Bombay City	6,417	9·95	24·05	4,658	7·23	17·46	1,064	1·65	3·99	1,771	2·75	6·63	4,010	6·22	15·03	2,708	4·22	10·18	1,970	3·06	7·38	1,880	2·84	6·86	2,248	3·49	8·42	266,86	41·41
Thána	2,021	2·39	9·64	3,471	4·10	16·56	1,423	1·68	6·79	1,195	1·41	5·70	3,317	3·91	15·82	2,756	3·25	13·15	2,283	2·69	10·89	2,371	2·80	11·31	2,125	2·51	10·14	20,962	24·74
Surat	2,422	3·99	15·32	3,216	5·30	20·34	966	1·60	6·11	821	1·35	5·19	1,579	2·60	9·99	1,571	2·59	9·94	1,362	2·24	8·61	1,466	2·41	9·27	2,407	3·96	15·23	15,810	26·04
Broach	2,315	6·61	15·22	4,254	12·14	27·97	953	2·72	6·27	694	1·98	4·56	1,219	3·48	8·01	1,320	3·77	8·68	1,371	3·91	9·02	1,454	4·15	9·56	1,628	4·65	10·71	15,208	43·41
Kaira	4,715	6·02	15·26	6,733	8·60	21·80	1,360	1·74	4·40	1,097	1·40	3·55	2,172	2·77	7·03	2,717	3·47	8·80	3,077	3·94	9·96	3,719	4·75	12·04	5,360	6·77	17·16	30,890	39·46
Panch Máhals	1,544	6·43	8·47	3,134	13·02	17·21	2,001	8·31	10·99	1,355	5·63	7·44	2,378	9·88	13·06	2,662	11·05	14·61	2,256	9·37	12·39	1,710	7·10	9·39	1,174	4·86	6·44	18,214	75·65
Ahmedabad	4,562	5·50	13·30	7,698	9·28	22·44	3,636	4·38	10·60	2,754	3·32	8·03	3,157	3·80	9·20	2,994	3·61	8·73	3,252	3·92	9·48	3,126	3·77	9·11	3,126	3·77	9·11	34,305	41·34
Kurrachee	1,058	2·49	14·54	652	1·53	8·96	346	0·88	4·77	544	1·28	7·48	877	2·07	12·07	997	2·35	13·70	870	2·05	11·95	669	1·58	9·19	1,262	2·98	17·34	7,275	17·18
Hyderabad	1,510	2·09	15·47	1,627	2·25	16·66	410	0·57	4·20	505	0·70	5·17	1,009	1·40	10·33	1,252	1·73	12·82	1,132	1·60	11·60	983	1·36	10·07	1,206	1·67	12·35	9,764*	13·52
Thar and Párkar	642	3·55	17·11	490	2·71	13·06	180	1·00	4·80	191	1·06	5·09	386	2·13	10·29	361	2·00	9·62	358	1·98	9·54	438	2·42	11·67	706	3·91	18·82	3,752	20·75
Shikárpur	1,427	1·84	18·90	800	1·03	10·60	370	0·48	4·90	408	0·52	5·40	842	1·08	11·15	1,124	1·45	14·89	876	1·13	11·60	684	0·88	9·06	1,020	1·31	13·50	7,551	9·72
Upper Sind Frontier ..	124	1·38	17·08	51	0·57	7·02	37	0·41	5·09	85	0·94	11·71	73	0·81	10·05	102	1·13	14·07	83	0·92	11·43	105	1·18	14·46	66	0·73	9·09	726	8·06
Total ..	56,285	3·48	10·56	97,141	6·00	18·23	38,979	2·41	7·31	32,541	2·01	6·11	60,440	3·73	11·34	58,915	3·64	11·06	56,198	3·47	10·54	60,200	3·72	11·30	72,122	4·46	13·53	532,951	32·94

N.B.—Including 130 deaths at Mirpur Khás R. C. from January to June 1878, of which no details by ages are available.

It will be seen that the rate is high amongst children above 1 year and under 6, the percentage on total deaths being 18·23. The ratio per 1,000 for those above 60 was 4·46, and the percentage on total deaths was 13·53. The ratio for those between 12 and 20 was only 2·01 per 1,000. In the Panch Maháls and Broach the rates for children above 1 year and under 6 are respectively 13·02 and 12·14 per 1,000, and on the Upper Sind Frontier, for the same period, there are only 0·57. Amongst those of 60 and upwards; the highest ratio per 1,000 is in the Belgaum District (7·69), and the lowest (0·73) on the Upper Sind Frontier.

Deaths by caste or class.

13. Deaths by caste or class are shown for Hindus, Mahomedans, Christians, and other classes. Under the last head are shown deaths not included in the other 3 divisions. For Hindus the recorded deaths were 462,318, or 35·39 per 1,000 of their numbers living: for Mahomedans there were 61,896, or 21·78 per 1,000. The Christians are the native converts, and their total of deaths was 2,732; the rate being 25·76 per 1,000. Amongst "other classes" the total was 5,979, and the rate was 35·28 per 1,000. For Mahomedans the highest death-rate (58·78 per 1,000) was at Násik, and the lowest (6·00) on the Upper Sind Frontier. Amongst Hindus the maximum (77·31) was in the Panch Maháls, and the minimum (16·42) in the Shikárpur District. For Christians the deaths at Kaládgi were 14, whilst the total number living in 1872 was only 52, so the rate is 275 per 1,000. As regards the deaths amongst "other classes" there is evident confusion as to the term. At the time of the census the return under that head from Kaládgi was 1 (that is to say, there was one person there, who was neither a Hindu, nor a Mohomedan, nor a Native Christian, but in 1878 there were no less than 328 deaths registered. Similarly at Sholápur, Sátára, Belgaum and Dhárwár the census numbers are respectively 75, 96, 82, and 38; whilst the deaths are 364, 126, 122, and 439. In all probability low caste Hindus have been included. There are similar discrepancies in the Panch Maháls and Ahmedabad returns, so the ratio column has not been filled in. The results for the several districts will be found in the appendix.

Deaths from specified causes.

14. In the following statement there are shown the deaths from specified causes, and from all causes, and they are contrasted with those for 1877. The details under the several headings are given in Section II.:—

Years.	Cholera.	Small-pox.	Fever.	Bowel Complaints.	Injuries.	All Other Causes.	Total.
1877	57,252	27,369	3,36,865	60,257	7,539	1,38,426	6,27,708
1878	46,743	4,475	3,57,376	41,165	7,550	75,642	5,32,951

Deaths by Circles.

15. Statistical returns are received from 222 rural and 55 town circles, and from 7 cantonments, and in addition, from 10 other cantonments in quasi foreign territory. The aggregate *enumerated* population of the rural circles is 14,294,346 of the town circles 1,842,615, of the cantonments 44,780, and of the outside cantonments 87,195. It will be seen by the subjoined table that the highest mean ratio of recorded deaths per 1,000 of population is found amongst the Urban population:—

Districts.	Number of Registration Circles.				Population.				Ratio of Deaths per 1,000 of Population.			
	Rural Circles.	Towns	Cantonments.	Total.	Rural Circles.	Towns.	Cantonments.	Total.	Rural Circles.	Towns.	Cantonments.	Total.
Khándesh	22	4	...	26	985,308	43,334	...	1,028,642	35·48	34·41	...	35·44
Násik	11	2	2	15	642,322	39,897	5,134	687,353	38·29	68·79	52·59	39·17
Ahmednagar	11	2	1	14	727,136	42,819	3,983	773,938	34·82	52·59	38·77	36·12
Poona	8	2	1	11	778,051	100,734	28,460	907,235	32·32	68·03	28·71	32·63
Sholápur	7	3	...	10	629,796	88,238	...	718,034	31·24	78·29	...	37·11
Sátára	12	3	...	15	1,014,046	46,956	...	1,061,002	38·10	47·68	...	38·52
Belgaum	7	3	1	11	882,273	51,147	5,330	938,750	46·95	46·24	78·23	47·08
Dhárwár	14	4	...	18	892,282	95,755	...	988,037	44·04	32·09	...	42·90
Kaládgi	8	1	1	10	809,445	6,592	...	816,037	29·56	41·72	...	29·67
Kánara	11	2	...	13	374,211	24,195	...	398,406	44·38	26·20	...	43·27
Ratnágiri	8	2	...	10	993,526	25,610	...	1,019,136	18·28	19·37	...	18·31
Kolába	6	2	...	8	338,301	12,104	...	350,405	18·05	29·32	...	19·02
Bombay City	...	1	...	1	....	644,405	...	644,405	...	41·41	...	41·41
Thána	11	3	...	14	809,485	37,939	...	847,424	24·57	28·23	...	24·74
Surat	8	2	...	10	488,623	118,464	...	607,087	26·66	23·47	...	26·04
Broach	6	2	...	8	298,466	51,856	...	350,322	45·02	34·11	...	43·41
Kaira	7	4	..	11	719,305	63,428	...	782,733	40·44	28·38	...	39·46
Panch Mahals	5	2	..	7	218,603	22,113	...	240,743	73·25	99·40	...	75·65
Ahmedabad	7	4	1	12	660,795	166,959	1,882	829,637	37·07	57·88	76·46	41·34
Kurrachee	13	1	...	14	369,969	53,526	...	423,495	16·40	21·82	...	17·18
Hyderabad	13	1	...	14	686,675	35,272	...	721,947	14·54	52·22	...	13·52
Thar and Párkar ...	7	1	...	8	176,762	3,999	...	180,761	20·57	28·76	...	20·75
Shikárpur	17	3	...	20	714,159	62,068	...	776,227	8·27	26·47	...	9·72
Upper Sind Frontier ...	3	1	...	4	84,780	5,205	...	89,985	5·33	44·57	...	8·06
Total ...	222	55	7	284	14,294,346	1,842,615	44,780	16,181,741	31·72	42·16	40·31	32·94

Statistics for the isolated cantonments.

16. The following table shows the statistics of the Civil population living in the Sadar Bazars in quasi foreign territory :—

Stations.	Civil Population.	Area in square miles.	Average Population per square mile.	Number of Deaths.							Ratio per 1000 of Population.							Births.	Ratio of Births per 1,000 of Population.
				Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other causes.	Total.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other causes.	Total.		
Aden	19,289	11·69	1,650·04	...	1	274	94	12	420	801	..	0·05	14·21	4·87	0·62	21·77	41·52	223	11·56
Baroda	2,451	9·00	272·33	4	1	74	...	1	36	116	1·63	0·41	30·19	..	0·41	14·69	47·33	32	13·06
Bhúj	991	1·04	952·88	5	...	35	4	3	4	51	5·05	..	35·32	4·03	3·03	4·03	51·46	53	53·48
Deesa	9,335	5·00	1,867·00	2	7	81	34	1	103	228	0·21	0·75	8·68	3·64	0·11	11·03	24·42	144	15·43
Kolhápur	646	1·21	533·89	...	...	8	5	...	5	18	..	..	12·38	7·74	...	7·74	27·86	32	49·54
Mehidpur	155	2·50	62·00	...	...	...	...	...	1	1	..	..	...	..	..	6·45	6·45	1	6·45
Mhow	22,792	6·50	3,506·46	81	7	750	38	11	448	1,335	3·55	0·31	32·91	1·67	0·48	19·65	58·57	649	28·47
Neemuch	11,787	4·23	2,786·52	3	...	342	...	2	136	483	0·26	...	29·01	..	0·17	11·54	40·98	162	13·74
Nasírabad	18,336	8·00	2,292·00	10	10	435	21	8	459	943	0·55	0·55	23·72	1·14	0·44	25·03	51·43	851	46·41
Rájkot	1,413	Unknown.		4	...	21	6	...	34	65	2·83	..	14·86	4·25	...	24·06	46·00	69	48·83
Total ...	87,195	49·17	1,773·34	109	26	2,020	202	38	1,646	4,041	1·25	0·30	23·16	2·32	0·43	18·88	46·34	32·16	25·41

SECTION II.

HISTORY OF CHIEF DISEASES.

CHOLERA.

17. For 1878 the occurrence of cholera is shown by seasons and by localities. Noticing it by seasons we get the times and dates of its appearance; and tracing it by localities, we see its course and movement through the Presidency. The mortality for the year is, as might have been expected, exceptionally heavy, and it is so whether we take it *per diem*, or by months, or quarters, or by our defined seasons. The total of deaths is 46,743, the ratio per 1,000 of population is 2·89, and out of every 1,000 deaths from all causes, there were 88 from cholera. The subjoined table shows that for the 12 years from 1866 to 1877 inclusive, the respective means of these numbers were 20,689, 1·38 and 63:—

Years.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	Means for 12 years.	1878.
Deaths from Cholera.. ..	23,027	5,143	6,347	52,380	2,666	5,821	15,642	283	37	47,555	32,117	57,252	20,689	46,743
Ratio per 1,000 of Population.	1·85	0·32	0·50	3·77	0·20	0·41	1·03	0·02	0·01	2·93	1·98	3·54	1·38	2·89
Out of every 1,000 deaths from *all causes*, there died from Cholera	124	32	35	184	12	21	44	1	..	126	87	91	63	88

Now in this table there is evidence, if not proof, that for the time specified there was a recurrence of similar conditions at regular periods. Three successive times a cholera wave surged, and retired with rhythmic precision. Commencing from 1866 the cycles of intensity were in 1869-1872 and 1875, and had not the balance been disturbed there might have been again the usual two years of comparative immunity. But in 1876 the famine cloud was gathering, and in 1877 it broke with appalling fierceness. In the first year there were grave indications of growing distress, and in the second there was dire and positive want: with the ghoul of cholera there was now the spectre of famine, and where the hand of the one was stayed, that of the other went out, and brought in its victim. For 1875 the deaths from cholera were 47,555, and for the two years, which ought to have been years of exemption, the totals are respectively 32,117 and 57,252. For 1878 they fall to 46,743, but this is more than double the mean of the entire period. Making every allowance for the inevitable confusion between deaths from cholera and those from famine diarrhœa and other effects of the calamity, the record shows only too plainly how crushing was the blow, and how completely the normal conditions were disturbed.

Mortality by months.

18. For the first 9 months of the year the mortality was much above the 9 months mean of the 5 years ending with 1876, but it is much higher than it was last year—a year of famine. For the closing 3 months the numbers compare favourably with those for the same months of last year, and with the quinquennial mean above-mentioned. The maximum mortality was in June (10,950), and the minimum (88) in December. This is seen in the subjoined statement which also gives the monthly mortality for each year from 1872 to 1878 inclusive, and the mean for the 5 years ending with 1876:—

Months.	1872.	1873.	1874.	1875.	1876.	Mean.	1877.	1878.
January	61	61	2	1	899	205	3,734	735
February	82	100	..	1	1,453	327	4,488	616
March	113	35	4	10	3,519	736	6,887	1,586
April	237	34	8	795	3,773	969	8,114	6,415
May	1,098	24	13	5,359	5,312	2,361	8,299	9,964
June	3,127	10	1	10,374	4,168	3,536	8,320	10,950
July	3,932	6	3	12,906	4,423	4,254	7,673	7,891
August	3,991	3	1	8,609	3,371	3,195	5,143	5,928
September	2,145	3	3	3,493	1,421	1,413	1,874	1,882
October	611	3	2	3,548	858	1.005	1,110	434
November	174	2	...	1,640	833	530	813	254
December	71	2	...	819	2,087	596	797	88
Total ...	15,642	283	37	47,555	32,117	19,127	57,252	46,743

19. The table on the opposite page gives the population of each affected district, the deaths in each month, the ratio per 1,000 and the quinquennial mean ratio. It will be seen that in some districts the mean for the year is slightly below that for the previous five; whilst in others the two are pretty evenly balanced. In the majority of instances, however, the years mean is the higher, and in the Panch Mahâls it is 17·15; whilst the quinquennial mean is only 1·26:—

Population			1,028,642	687,353	773,938	907,235	718,084	1,061,002	938,750	988,037	816,037	398,406	1,019,195	350,405	644,405	847,424	607,087	350,322	782,733	240,743	829,637	180,761	
Months.		Total for the Presidency.	Khándesh.	Násik.	Ahmednagar.	Poona.	Sholápur.	Sátára.	Belgaum.	Dhárwár.	Káladgi.	Kánara	Ratnágiri.	Kolába.	Bombay City.	Thána.	Surat.	Broach.	Kaira.	Panch Mahals.	Ahmedábad.	Thar and Párkar.	The ratio per 1,000 of total Population to Cholera Deaths.
January	..	735	..	..	..	2	..	..	269	..	16	32	50	12	35	172	90	2	25	33	7	..	0·04
February	..	616	..	..	..	14	..	..	131	..	..	11	86	..	109	149	100	5	7	4	..	..	0·04
March	..	1,586	..	..	..	7	..	..	349	156	59	2	49	..	224	18	31	96	404	85	99	7	0·10
April	..	6,415	..	..	3	229	116	52	2,492	396	360	3	19	..	128	64	225	169	560	926	654	19	0·39
May	..	9,964	5	..	98	568	1,189	837	1,979	411	987	12	29	2	137	142	299	308	357	1,458	1,146	..	0·62
June	..	10,050	389	..	365	1,292	705	3,157	470	291	481	2	75	321	99	361	432	312	190	1,379	629	..	0·67
July	..	7,891	1,525	18	1,034	933	909	1,195	63	161	290	..	147	206	156	463	211	115	50	222	193	..	0·49
August	..	5,928	3,356	257	546	396	155	94	1	314	37	..	47	198	116	260	52	19	..	22	58	..	0·37
September	..	1,882	725	499	180	145	..	49	13	61	..	6	12	47	43	24	73	..	1	1	3	..	0·12
October	..	434	1	81	41	15	..	2	..	..	..	6	10	1	53	62	157	1	..	..	4	..	0·03
November	..	254	53	16	..	..	..	..	..	..	..	..	35	..	40	54	56	..	..	..	..	..	0·02
December	..	88	23	..	..	..	..	..	..	..	..	..	..	..	25	40	..	..	..	..	..	..	0·00
Total ..		46,743	6,077	871	2,267	3,601	3,074	5,388	5,757	1,790	2,230	74	559	787	1,165	1,809	1,726	1,027	1,594	4,180	2,793	26	2·89
Ratio of Deaths per 1,000 of Population.			5·91	1·26	2·92	3·96	4·23	5·08	6·13	1·81	2·73	0·19	0·55	2·25	1·81	2·18	2·84	2·93	2·03	17·15	3·36	..	..
Mean for 5 Years	..	..	1·54	1·43	2·26	1·98	1·95	2·31	3·38	3·62	3·29	1·88	0·83	1·51	1·18	2·43	1·00	1·07	0·92	1·26	8·99	..	..

20. Before looking at the course of the disease in 1878, it will be as well to see what was the condition at the close of 1877. For December of that year the number of deaths was 797, and at the close of the month there was cholera at different points in the collectorates of Kánara, Ratnágiri, Thána, Surat, Ahmedabad, Kaira, and the Panch Maháls, it was in Bombay, and had crept up the Ghâts to Poona City, it was in 4 tálukas of the Belgaum Collectorate, and in the cantonment.

January.

21. In January, and for the Presidency generally, there were 1,073 attacks and 735 deaths in the 13 districts, where it prevailed. At the close of 1877 cholera was present in 23 circles, and during January it appeared in 13. On the 2nd of the month there was a case in the town of Gokák in the Belgaum Collectorate, and two days afterwards other cases were reported from the Málvan Tálúka in Ratnágiri. On the 5th it was at Panvel in the Thána District; on the 6th it was reported from 3 other circles; and on the 9th and 10th it had spread to 2 tálukas of the Surat District; on the 12th it was in the Belgaum Cantonment and on the 17th, 19th and 20th it was in 3 tálukas of Kaira, Surat, and Ratnágiri respectively; on the 27th it appeared in the Anklesvar Táluka of Broach District. In the Belgaum District there were 384 cases and 259 deaths, and in the Thána District there were 250 cases and 172 deaths. The total mortality for the month was 735 and for the previous month, December 1877, it was 797. At Poona there were 8 fresh cases, and, with this exception, the Northern Deccan was almost entirely free. These details are shown in the following Table :—

District.	Circles.	Date of first case.	Whether first appearance, or continued from last year.	Corresponding number in Map.
Poona	Poona City, T. C.	1st January 1878	Continued	62
Belgaum	Belgaum, R. C.	Ditto.	Do.	90
Do.	Sampgaon ,,	Ditto.	Do.	91
Do.	Parasgad ,,	Ditto.	Do.	94
Do.	Gokák ,,	Ditto.	Do.	95
Do.	Belgaum, T. C.	Ditto.	Do.	97
Kaládgi	Kaládgi ,,	Ditto.	First time	125
Kánara	Honávar R. C.	Ditto.	Continued	127
Do.	Bhatkal Petha ,,	Ditto.	Do.	128
Do.	Mugud Petha ,,	Ditto.	First time	130
Do.	Supa Petha ,,	Ditto.	Continued	132
Ratnágiri	Khed ,,	Ditto.	Do.	137
Kolába	Mahád ,,	Ditto.	First time	143
Bombay City	Bombay City, T. C.	Ditto.	Continued	146
Thána	Salsett, R. C.	Ditto.	Do.	154
Do.	Karjat ,,	Ditto.	Do.	156
Surat	Surat, T. C.	Ditto.	Do.	168
Kaira	Nadiád, R. C.	Ditto.	Do.	178
Do.	A'nand ,,	Ditto.	Do.	180
Panch Maháls	Godhra ,,	Ditto.	Do.	188
Do.	Hálol ,,	Ditto.	Do.	192
Do.	Dohad, T. C.	Ditto.	Do.	194
Ahmedabad	Viramgám, R. C.	Ditto.	First time	199
Belgaum	Gokák, T. C.	2nd January	Continued	98
Ratnágiri	Málvan, R. C.	4 h Ditto.	First time	133
Thána	Panvel, T. C.	5th Ditto.	Do.	159
Belgaum	Chikodi, R. C.	6th Ditto.	Do.	93
Kaira	Mátar ,,	Ditto.	Do.	183
Ahmedabad	Gogo ,,	Ditto.	Continued	196
Surat	Bárdoli ,,	9th Ditto.	First time	163
Do.	Chorási ,,	10th Ditto.	Do.	162
Belgaum	Belgaum, C. T.	12th Ditto.	Continued	100
Kaira	Kapadvanj, R. C.	17th Ditto.	Do.	182
Surat	Jalálpor ,,	19th Ditto.	First time	164
Ratnágiri	Chiplún ,,	20th Ditto.	Do.	136
Broach	Anklesvar ,,	27th Ditto.	Do.	173

N. B.—R. C. = Rural Circles or Tálukas.
T. C. = Town Circles.
C. T. = Cantonment.

February.

In February cholera disappeared from the Kaládgi, Kolába and Ahmedabad Districts, and there was general evidence of decrease except in Poona, Ratnágiri, Bombay City, Thána, Surat, and Broach: in these districts it was on the increase. There were 933 fresh cases and 616 deaths, the percentage of the latter to the former being 66. During this month the disease appeared in 37 new villages, and their collective population numbered 95,567: the ratio per 1,000 of deaths to affected population was 6·44.

March. In March cholera continued in all the affected districts, re-appeared in Kaládgi and Ahmedabad, and appeared for the first time in Dhárwár, and Thar and Párkar. It was very severe in Broach, Kaira, Panch Maháls, and Ahmedabad, and much less so in Surat. In the Konkan generally it was also less severe, except in Bombay City, where the attacks and deaths were twice as many as those in February. It was on the increase in all those Deccan Districts, where it was present. The monthly total of attacks was 2,685 and of deaths 1,586; whilst the percentage of deaths to attacks was 59. It appeared in 165 villages of 494,936 inhabitants, and the ratio of deaths to affected population was 3·20.

April. In April 3 districts were markedly exempt, viz., Khándesh, Kolába and Násik, but in all others affected it was severe, and it appeared afresh in Ahmednagar, Sholápur, and Sátára. There were 10,354 attacks during the month and 6,415 deaths; the percentage of the latter to the former being 62. The population affected afresh was 798,815 in 522 villages, and their ratio of deaths was 8·03 per 1,000.

May. In May cholera disappeared from Thar and Párkar, and on the 23rd a case was reported in Khándesh. There were 14 others during the month and 5 deaths. After a three months absence it re-appeared in Kolába, where there were 2 deaths. Násik was free, but it continued in Belgaum, Bombay City and Kaira, though with less force. For the Presidency generally there were 15,587 attacks and 9,964 deaths, the ratio per cent being 63·9.

June. In June the attacks and deaths were respectively 19,093 and 10,950, the percentage being 57·3. Nearly one-fourth of the total mortality for the year occurred in this month, and the maximum was reached, but the percentage of deaths to attacks was less by 6·6 than in May. All the districts of Konkan and Gujarát Divisions were affected, and every Deccan district, except Násik. It was on the increase in those districts lately affected, but in those where it had continued it was declining.

July. With the single exception of Kánara, every district in the Deccan, Konkan, and Gujarát suffered severely in July. It appeared too for the first time in Násik. In the Poona District the attacks and deaths were respectively 1,628 and 933 against 2,403 and 1,292 in May. In Sholápur the attacks were fewer by 276, but the deaths 204 more. The monthly total of attacks was 14,128 and of deaths 7,891; whilst the percentage of the latter to the former was 55·8: the ratio per 1,000 of cholera deaths to all deaths was 159·7. During this month cholera visited 547 fresh places, and the population of the affected areas was 884,125.

August. In August Khándesh suffered more than any other district: here the attacks and deaths were respectively 6,676 and 3,356. These were returned from 234 villages and 4 towns, having an aggregate population of 212,323. In Kánara and Kaira neither attacks nor deaths were registered. Násik and Dhárwár suffered somewhat, but in the remaining districts it was declining. There were 10,987 fresh cases, and 5,928 deaths. The population of the affected areas was 405,347, distributed over 398 villages and towns. The percentage of deaths to attacks was 54, and that of cholera deaths to all deaths was 10·4.

September. In September cholera re-appeared in Kánara and Kaira and disappeared from Broach, Sholápur, and Kaládgi. There were 3,598 fresh attacks and 1,882 deaths; the percentage of the latter to the former being 52·3. The population of the areas affected numbered 213,207 and they were distributed over 190 villages. The percentage of cholera death to this population was 8·82.

October. In October cholera had abated in Khándesh, Násik, Ahmednagar, Poona, Sátára, Kánara, Katnágiri, Kolába, Broach, and Ahmedabad; but it was still rather severe in Bombay City, Thána, and Surat. The attacks and deaths for the month were respectively 652 and 434 against 3,598 and 1,882 in September, but the percentage of deaths

to attacks was higher by 14·3. The ratio of cholera deaths to total deaths was 9·0 per 1,000.

November. In November cholera was decreasing everywhere, except in Khándesh and Ratnágiri, in fact it had disappeared from most of the districts, and lingered in Bombay City, Násik, Thána, and Surat. The attacks and deaths were respectively 341 and 254, and the percentage of the latter to the former was 74·5. The ratio of cholera deaths to all deaths was 5·4 per 1,000.

December. In December the disease only remained in Khándesh, Bombay City, and Thána. The attacks and deaths were respectively 124 and 88, and the percentage of the latter to the former was 71.

22. In the following table there are shown the number of attacks and deaths, the total of deaths from all causes, and the ratio per 1,000 of cholera deaths to attacks, to total population, and to total deaths, in each month of the year :—

Months.	Number of Attacks by Cholera.	Number of Deaths from Cholera.	Total Deaths from all causes.	Ratio per 1,000 of Cholera Deaths to		
				Attacks.	Total Population.	Total Deaths.
January	1,073	735	41,763	685·3	0·04	17·6
February	933	616	31,828	660·2	0·04	19·4
March	2,685	1,586	34,060	590·7	0·10	46·6
April	10,354	6,415	39,674	619·5	0·39	161·7
May	15,587	9,964	45,567	639·2	0·62	218·7
June	19,093	10,950	45,753	573·3	0·67	239·3
July	14,128	7,891	49,412	558·5	0·49	159·7
August	10,987	5,928	56,911	539·9	0·37	104·2
September	3,598	1,882	52,364	523·1	0·12	36·0
October	652	434	48,263	665·7	0·03	9·0
November	341	254	46,706	744·9	0·02	5·4
December	124	88	40,650	709·7	...	2·2
Total ...	79,555	46,743	532,951	587·6	2·89	87·7

Deaths by Quarters. 23. The attacks and deaths in the several quarters were distributed thus—In the first 4,691 and 2,937, in the second 45,034 and 27,329, in the third 28,713 and 15,701, in the fourth 1,117 and 776.

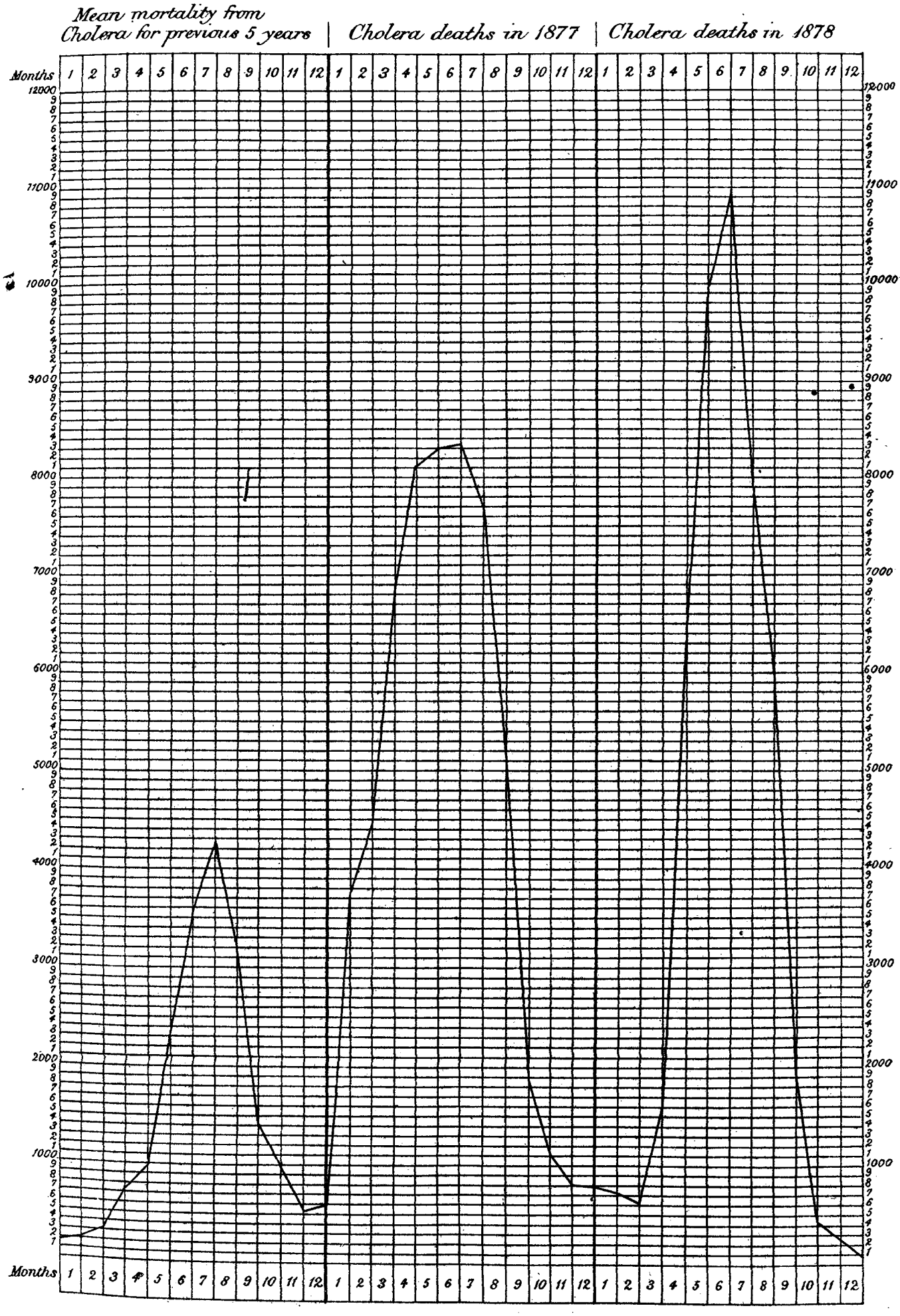
Deaths by seasons. 24. In the sub-joined table the mortality is shown by season. It is given for the year and for the preceding year, and the average is given for the 5 years from 1872 to 1876 :—

Years.	Cold 121 days.				Hot and Dry (61 days).		Rainy (122 days).				Hot and Damp (61 days).		Total of the year.
	December (31).	January (31).	February (28).	March (31).	April (30).	May (31).	June (30).	July (31).	August (31).	September (30).	October (31).	November (30).	
1872	71	61	82	113	237	1,098	3,127	3,982	3,991	2,145	611	174	15,642
1873	2	61	100	35	34	24	10	6	8	3	3	2	283
1874	...	2	...	4	8	13	1	3	1	3	2	...	37
1875	819	1	1	10	795	5,359	10,374	12,906	8,609	3,493	3,548	1,640	47,555
1876	2,087	899	1,452	3,519	3,773	5,312	4,168	4,423	3,371	1,421	858	833	32,117
Mean for 5 years	596	205	327	736	969	2,361	3,536	4,254	3,195	1,413	1,005	530	19,127
1877	797	3,734	4,488	6,887	8,114	8,299	8,320	7,673	5,143	1,874	1,110	813	57,252
1878	88	735	616	1,586	6,415	9,964	10,950	7,891	5,928	1,882	434	254	46,743

Abstract.

Seasons.	1872.	1873.	1874.	1875.	1876.	Means.	1877.	1878.
Cold (121 days)	327	198	6	831	7,958	1,864	15,906	3,025
Hot and dry (61)	1,335	58	21	6,154	9,085	3,330	16,413	16,379
Rainy (122)	13,195	22	8	35,382	13,383	12,398	23,010	26,651
Hot and damp (61)	785	5	2	5,188	1,691	1,535	1,923	688
Total ...	15,642	283	37	47,555	32,177	19,127	57,252	46,743

Diagram, shewing for the Bombay Presidency, the mortality from Cholera for 1877 and 1878, and the mean mortality for the previous 5 years



Photozincographed, Govt Office, Poona, 1879.

Daily mortality.

25. From the abstract of the above it will be seen that, in the cold season of 121 days, the total mortality from cholera was 3,025, a rate of 25 per day. For the 61 days of the hot and dry season there were 16,379 deaths or 269 per day, during the 122 days of the rainy season there were 26,651 deaths or 219 per day, and for the 61 days of hot and damp or moist weather there were 688 deaths only, 11 per day. For the Presidency generally the daily mortality for all seasons and from all causes was 1,460; and of this number there were 128 deaths from cholera.

"Cholera diagram."

26. In the annexed diagram there is shown the monthly cholera mortality for the year under report (1878), for the year immediately preceding and for the quinquennial period from 1872 to 1876.

Mortality by circles.

27. Two hundred and seven out of 284 registration circles were affected by cholera; whilst in the previous year there were 206. The total mortality was 46,743, so it was 10,509 less than that for 1877, and 26,054 more than the annual mean for the 12 years' period from 1866 to 1877. Twenty districts were affected or 3,565 units. Of the 46,743 deaths, there were 25,076 of males and 21,667 of females, a proportion of 1,000 to 864. The ratio per 1,000 of population for the entire Presidency was 2·89. Of males dying to males living it was 2·96, and of females dying to females living it was 2·82. The following table shows the Registration Circles affected:—

Divisions.	Number.	Districts.	Total Number of Circles.				Population of all Circles by Census.	Number of Circles affected.			
			Tálukas or R. C.	Towns or T. C.	Cantonments or C. T.	Villages.		Tálukas or R. C.	Towns or T. C.	Cantonments.	Villages.
Northern Deccan.	1	Khándesh	22	4	..	2,625	1,028,642	22	4	..	508
	2	Násik	11	2	2	1,629	687,353	11	1	1	90
	3	Ahmednagar	11	2	1	1,342	773,938	11	2	1	172
	4	Poona	8	2	1	1,184	907,235	8	2	1	220
	5	Sholápur	7	3	..	647	718,034	7	3	..	219
Southern Deccan.	6	Sátára	12	3	..	1,352	10,61,002	12	3	..	390
	7	Belgaum	7	3	1	1,085	938,750	7	3	1	318
	8	Dhárwár	14	4	..	1,407	988,037	13	3	..	114
	9	Kaládgi	8	1	1	1,201	816,037	8	1	1	174
Konkan.	10	Kánara	11	2	..	972	398,406	6	..	..	14
	11	Ratnágari	8	2	..	1,249	1,019,136	6	..	..	54
	12	Kolába	6	2	..	915	350,405	5	2	..	37
	13	Bombay City	..	1	..	..	644,405	..	1	..	..
	14	Thána	11	3	..	2,129	847,424	10	3	..	186
Gujarát.	15	Surat	8	2	..	853	607,087	8	1	..	169
	16	Broach	6	2	..	407	350,322	6	2	..	116
	17	Kaira	7	4	..	577	782,733	7	4	..	202
	18	Panch Máhals	5	2	..	638	240,743	5	2	..	351
	19	Ahmedabad	7	4	1	888	829,637	7	4	1	231
Sind.	20	Kurrachee	13	1	..	3,328	423,495	..	..	..	..
	21	Hyderabad	13	1	..	5,967	721,947	..	..	..	..
	22	Thar and Párkar	7	1	..	1,585	180,761	1	..	..	3
	23	Shikárpur	17	3	..	4,638	776,227	..	..	..	..
	24	Upper Sind Frontier ..	3	1	..	1,015	89,985	..	..	..	..
		Total ..	222	55	7	37,633	16,181,741	160	41	6	3,518

From the above it will be seen that 160 out of 222 rural circles were affected and 41 out of 55 towns; of all the civil cantonments, 7 in number, Deoláli alone escaped.

Deaths by Districts and by Sexes.

28. Of our 24 Districts 20 were affected. For Khándesh, Ahmednagar, Kolába, Thána, Násik, Ratnágiri, and Thar and Párkar, the death-rate for females exceeds that for males, but in the other districts it is the other way. The heaviest mortality (6,077) is from Khándesh. In Sátára and Belgaum the deaths were between 5,000 and 6,000; in the Panch Mhaáls between 4,000 and 5,000; in Sholápur and Poona between 3,000 and 4,000; in Ahmedabad, Ahmednagar, and Kaládgi between 2,000 and 3,000; in Broach, Surat, Thána, Kaira, Dhárwár and Bombay City between 1,000 and 2,000; and in Kolába, Ratnágiri, Násik, Kánara, and Thar and Párkar they were under 1,000. The districts which suffered most are shown in sequence in the following table, and there are also shown the deaths by sexes and the death-rates, as well for 1878, as for the quinquennial period from 1872.

Number.	Districts.	Total Deaths from Cholera during 1878.			Ratio of Deaths per 1,000 of Population.			Mean Ratio per 1,000 of previous 5 years.
		Males.	Females.	Total.	Males.	Females.	Total.	
1	Panch Mahâls	2,295	1,835	4,130	18·17	16·03	17·15	1·26
2	Belgaum	3,057	2,700	5,757	6·38	5·87	6·13	3·38
3	Khándesh	2,999	3,078	6,077	5·65	6·18	5·91	1·54
4	Sátára	2,987	2,399	5,386	5·54	4·60	5·08	2·31
5	Sholápur	1,776	1,298	3,074	4·80	3·72	4·28	1·95
6	Poona	1,986	1,615	3,601	4·25	3·66	3·97	1·98
7	Ahmedabad...	1,533	1,260	2,793	3·49	3·22	3·37	0·99
8	Broach	545	482	1,027	2·98	2·87	2·93	1·07
9	Ahmednagar	1,153	1,114	2,267	2·91	2·93	2·93	2·26
10	Surat	874	852	1,726	2·87	2·81	2·84	1·00
11	Káladgi	1,227	1,003	2,230	2·94	2·52	2·73	3·29
12	Kolába	370	417	787	2·08	2·42	2·25	1·51
13	Thána	873	936	1,809	1·99	2·29	2·13	2·43
14	Kaira	956	638	1,594	2·28	1·75	2·04	0·92
15	Dhárwár	965	825	1,790	1·97	1·71	1·81	3·62
16	Bombay City	734	431	1,165	1·84	1·76	1·81	1·18
17	Násik	441	430	871	1·25	1·31	1·27	1·43
18	Ratnágiri	249	310	559	0·51	0·58	0·55	0·83
19	Kánara	45	29	74	0·22	0·15	0·19	1·88
20	Thar and Párkar	11	15	26	0·11	0·19	0·14	...
	Total for the Presidency ...	25,076	21,667	46,743	2·96	2·82	2·89	1·66

29. In Khándesh cholera first appeared on the 23rd May in the villages of Longani and Mendpur in the Táloda Circle, and 3 out of the 4 seizures ended fatally. Five days afterwards there were 11 cases in the village of Manwád in the Shirpur táluk, and two of these ended fatally. In June it spread to nine other circles, and the attacks and deaths were respectively 1,021 and 389.—In July it was in all the circles, except Pimpalner and Nizámpur; there were 3,431 fresh cases and 1,525 deaths.—In August it continued in all the affected circles, and spread to Pimpalner, there were 6,676 attacks and 3,356 deaths.—In September there was a marked decrease, and it was still more marked towards the close of the month, the attacks and deaths were 1,478 and 725. In October the return showed only 6 attacks and 1 death. In November there were 65 fresh cases and 53 deaths, and for December the numbers were respectively 40 and 23. In the Towns of Dhulia, Nandurbár, Chopda, and Nasirabad the population varies from 9,000 to 15,000, and here the deaths per 1,000 of population were respectively 8·80-8·46, 11·90, and 15·96. The highest rural circle ratios were the following: 10·58 in Páchora, 10·24 in Shirpur, and 9·44 in Ráver. From Nizámpur only 3 deaths were reported. For the entire district the ratio of deaths per 1,000 of population was 5·91.

Khándesh.

30. In Násik cholera first appeared on the 21st July in the village of Balethan in the Nándgaon táluk. There were 6 cases, and they all proved fatal. It then spread to Mandier, Vakhardi, and Málegaon in the Niphád, Chándor, and Málegaon tálukas respectively. The attacks and deaths for July were 22 and 18. In August they were 568 and 257. In September it had spread to 11 out of the 15 rural, town and cantonment circles. There were 896 fresh cases, and 499 deaths. In October it declined, and the last case occurred in the Niphád táluka. By November it had died out. For the whole district the ratio of deaths was 1·27 per 1,000. It was highest (6·12 in the Nándgaon táluka, and lowest 0·02) in the Násik and Dindori tálukas. The totals of attacks and deaths for the year were respectively 1,672 and 871, and the percentage of deaths to attacks was 52·1.

Násik.

31. In Ahmednagar cholera first appeared on the 22nd April, in the village of Wadigiri in the Párner táluka. There were 7 cases, and 2 deaths. A week afterwards there were 7 cases in the town of Jámkhed, but only 1 of them ended fatally. The attacks and deaths in April were 14 and 3. In May it spread to 3 other circles and there were 222 attacks and 98 deaths, in June there were 760 fresh cases, and 365 deaths; whilst in July they were respectively 1,880 and 1,034. In

Ahmednagar.

August and September there were 1,060 and 370 attacks and 546 and 180 deaths. In October, they were 72 and 41, and by the end of the month the disease had died out. The last case of the year occurred on the 29th October in the Nagar táluka. Ahmednagar town suffered more than any other of the 14 circles; here, in a population of 32,841, there were 420 deaths from cholera, so the ratio of deaths to population was 12·80 per 1,000. For the whole district the attacks and deaths for the year were respectively 4,378 and 2,267, the percentage of deaths to attacks being 51·8. These deaths were returned from 175 Registration units, and their collective population numbered 235,352. The ratio of deaths to total population was 2·93 per 1,000.

Poona.

32. At the close of 1877 there was cholera in Poona City, and in January there were 8 fresh cases and 2 deaths. This was the only affected circle in the district. In February it disappeared from the city, and appeared in the Sirur and Mával tálukas; there were 18 attacks and 14 deaths. In March there were only 7 deaths, but in April there were 229. In May it was in every táluka, and re-appeared in Poona City, and for this month there were 985 fresh cases and 568 deaths. In June it was in all the circles, except Junnar, the attacks and deaths were respectively 2,403 and 1,292. In July it decreased somewhat and the numbers were 1,628 and 933. In August it disappeared from the Indápur, Bhimthadi and Haveli tálukas, but a fatal case—the first—occurred in the town of Junnar. The attacks and deaths were respectively 623 and 396. In September it was only in the Junnar, Khed, and Sirur tálukas, and in Poona City. There were 305 fresh cases, and 145 deaths, the percentage of deaths to attacks being 47·5. In October the last case for the year occurred on the 20th. In this month there were 11 fresh seizures, and they all ended fatally. There were also 4 deaths of the previous month's cases. The attacks and deaths for the year were 6,466 and 3,601 respectively, and the percentage of the latter to the former was 55·7. Every Registration circle was more or less affected, but Indápur suffered most. There in population of 62,392 persons, 330 died from cholera, *i. e.*, 5·29 per 1,000. For Purandhar, the ratio is 5·12 per 1,000. The mean ratio for the entire district was 3·97.

Sholápur.

33. In Sholápur the first case occurred on the 15th April at Aljapur, a village of 406 inhabitants in the Bársi táluka. There were 6 cases in all, and all ended fatally. Four days afterwards, 19th, there was a fatal case in Bársi Town, and on the same day it appeared at Wadjee, a small village of 601 inhabitants in the Sholápur táluka, bordering on Bársi. Here there were 37 attacks and 18 deaths in 11 days. A week afterwards it appeared in 9 other villages of the Sholápur táluka, and on the 30th April there were 2 fatal cases in the town itself. The attacks and deaths in the Sholápur táluka during April were 111 and 73 respectively, and the percentage of the latter to the former was 65·77. In the Bársi táluka it appeared in three villages, and in Bársi town where there were 36 attacks and 36 deaths. On the 27th April it occurred in the village of Bramhapuri, on the banks of the Bhima, in the Pandharpur táluka, there were 12 attacks and 3 deaths. On the 30th April there was 1 fatal case in the town of Mádha. The attacks and deaths for the month were respectively 160 and 116, and the percentage of the latter to the former was 72·5. In May it was present in the town of Sholápur, and in 29 villages of the táluka, in the town of Bársi and 18 villages of the táluka, in 19 villages of the Mádha táluka, 8 of Karmala, 13 of Pandharpur, 7 of Sángola, and 9 of Málsiras. The town of Pandharpur was free from it. The attacks and deaths for the month were 2,037 and 1,189, the percentage of deaths being 58·3. In June there was a slight decrease, but it continued in all the affected circles. There were 1,468 fresh cases and 705 deaths just under 50 per cent. In July there was a still further diminution; but it now appeared, for the first time, in the town of Pandharpur. Here there were 220 seizures, and they all ended fatally, the population being 16,275 the ratio of deaths was 13·5 per 1,000. As regards this outbreak it must be remembered that it occurred during the great Ashadi Jatra, when 55,000 pilgrims were assembled from far and near. The opening and closing days were the 10th and 20th July, and cholera broke out on the 13th and lasted till the 21st. Mr. Narayan Anant, the Assistant Surgeon at Pandharpur, says, in his report, on the Játra: " There was no disease of any kind till the

10th—the chief day of the Fair; but on the following morning reports were received that 3 persons, 2 natives of Kárwár and one of Narsobás'-wari, near Miráj, were taken ill; of whom 1 had died. Medicines were administered to the remaining 2, 1 of whom recovered, and the other died seven hours after. The number of attacks from cholera went on increasing till the 14th, after which it continued to fall as the pilgrims disappeared." For the whole district the attacks for July were 1,192 and the deaths 909,—the percentage of the latter being 76·2. In August there was a marked diminution, and it disappeared altogether from the town of Pandharpur. For this month the total of attacks was only 234 with 155 deaths. For the rest of the year the district was free. For the year there were 5,091 attacks and 3,074 deaths,—a percentage of 60·4. The ratio of deaths per 1,000 of population was 13·95 in the town of Bársi, and 13·51 at Pandharpur; whilst for the district it was 4·28.

Sátára.

34. In Sátára cholera first appeared on the 17th April at Kulangwádi, a small village of 228 inhabitants in the Wái Táluka. There were 3 cases, and 1 was fatal. On the same day it appeared in the neighbouring villages of Kikáli, and here there were 14 attacks and 4 deaths. On the following day, the 18th, it appeared in Bhilawádi, a town of 9,403 inhabitants in the Tásgaon Táluka, and spread to 3 other places. The last case for the month—a fatal case—was at Wadurg, a village in the Khatáo Táluka. The total of attacks was 110 and of deaths 52,—a percentage of 47·3. The population of the areas affected during April was 29,322, and the ratio of deaths was only 1·7 per 1,000. In May it spread rapidly throughout the district—Mahábaleshvar alone escaping. The population of the areas affected was 160,460, the attacks were 1,617 and the deaths 837. In June it increased in severity. There were 6,071 attacks and 3,157 deaths. The ratios of deaths per 1,000 of attacks and of affected population were respectively 520 and 7·8. In July it was still very prevalent, but not so severe, and Mahábaleshvar was still free. There were 2,403 attacks and 1,195 deaths. In August there were only 161 attacks and 94 deaths. In September it was fast subsiding, and the last case of the year occurred on the 15th October, at Gádoli, in the Sátára Táluka. The deaths for the year, in the whole district, were 5,386; the mean ratio was 5·08 per 1,000. The ratios for the towns of Karár and Wái were respectively 11·92 and 20·34 per 1,000 of population—the last is the highest in the towns for the Presidency.

Belgaum.

35. As the Belgaum District suffered almost continuously for two successive years, it will be as well to revert to the events of 1877. From January to August of that year cholera prevailed very generally, and in September and October it remitted, causing only 10 deaths. In November, however, it began to increase, and in that month there were 13 deaths; in December there were 230, and at the close of the year it was present in the Belgaum, Sampgaon, and Parasgad Tálukas, in the towns of Belgaum and Gokák, and in the Belgaum Cantonment. In January 1878 it still prevailed in the places named, and appeared at Nipani and Aloor—two villages of the Chikodi Táluka. The attacks for the month were 384 and the deaths 259. The population of the areas affected was 120,758, and the ratio of deaths amongst them was 2·07 per 1,000. In February it disappeared from the towns of Belgaum and Gokák, and the attacks and deaths for the month fell to 227 and 131. In March there was an increase, and it re-appeared at Gokák: there were 547 fresh cases and 349 deaths. In April the disease had spread through all the circles except Athni town. The deaths in this month were 2,492. In May there were 2,725 attacks and 1,979 deaths. In June it disappeared from Gokák town and abated in all the circles—there being only 470 deaths. In July there were only 63, and the disease was fast dying out. During August there were only 8 fresh cases and 1 death, and in September there were 24 and 13. The last case was on the 28th September. For the whole district, and for the year, the attacks and deaths were respectively 8,448 and 5,757,—a percentage of 68·1. The ratio of deaths per 1,000 of population was 12·63 in the Sampgaon Táluka and 10·40 in Parasgad. For the district it was 6·12

Dhárwár.

36. In Dhárwár cholera first appeared on the 6th March at Betgeri, a village of 4,669 inhabitants, in the Dhárwár Táluka. There were 53 attacks during the month in this village alone

and 33 deaths. On the following day, 7th March, it appeared in Pet-Betgeri, a neighbouring village, and the attacks and deaths were respectively 88 and 50. Three days afterwards, on the 10th, it appeared at Hunomankop, a small village of 963 inhabitants, and here there were 37 attacks and 25 deaths. Thus within the week it had spread to 8 villages of the Dhárwár Táluka, and on the 17th it appeared in the town of that name. It also spread to three villages of the Mugúd Táluka, where there were 10 cases and 4 deaths. On the 19th there was a fatal case in the town of Navalgund. The attacks and deaths for March were respectively 268 and 156,—a percentage of 58·2. In April it prevailed in the affected circles, and spread to the tálukas of Hubli, Nargund, and Kalghatgi and the town of Hubli. The attacks for the month were 639 and the deaths 396. In May the attacks and deaths reached the maximum for the year; they were respectively 664 and 411. For June and July the deaths fell to 291 and 161; but in August they rose to 314. In September there were 79 fresh cases, and 61 of them ended fatally, and then the disease disappeared. The last case was on the 30th. The total mortality was 1,790, or 1·81 per 1,000 of population. The highest ratio of deaths was in the Dhárwár Táluka, where it was 9·47 on a population of 72,295.

Káladgi.

37. In Káladgi, although cholera was very prevalent during 1877, it had almost died out; but on the 31st December it appeared in Kaládgi town and remained there till the 5th January. In these five days there were 29 attacks and 16 deaths. From this time there was almost complete immunity, when, on the 25th March, it appeared simultaneously in five villages of the Bágalkot Táluka. Four days afterwards there were 6 fatal cases, 5 in a neighbouring village, and 1 in the town of Hungund. The population of the areas affected numbered 24,764 and there were 108 attacks and 59 deaths. During April it spread to 6 out of 8 tálukas and appeared in the town and Cantonment of Káladgi. There were 549 fresh cases during the month and 360 deaths,—a percentage of 65·7; in this month it prevailed in three villages of the Sindi Táluka, 4 of Bágevádi, 14 of Bagalkot, two of Muddebihál, 7 of Bádámi, and 7 of Hungund—in all 37 villages. In May it disappeared from the town and cantonment of Kaládgi and appeared for the first time in the Indi and Bijápur Tálukas. The attacks and deaths for the month were respectively 1,462 and 987. During June it abated everywhere except in the Indi Táluka: the attacks and deaths were 741 and 481. In July 426 fresh cases and 290 deaths. The disease was confined to the Sindgi, Indi, Bágevádi, and Bijápur Tálukas. In August it has well nigh disappeared, and there were only 63 attacks and 37 deaths. From September the district was entirely free. The attacks and deaths for the year were respectively 3,378 and 2,230,—a percentage of 66·0. The ratio of deaths for 1,000 of population was 5·18 for the Indi Táluka, and 5·08 for Bágevádi; whilst for the district it was 2·73.

Kánara.

38. In Kánara cholera continued from 1877. In December of that year it was present in six tálukas, and the last case was on the last day of the year. The deaths for the month were 51. In January it appeared simultaneously in 5 different villages of 4 different tálukas at Chikengodi and Muttya in Honávar, at Sudurle in Betkal Petha, and at Mungúd and Supa, in those tálukas. In these places the attacks and deaths were respectively 10 and 10, 4 and 4, 28 and 7, 8 and 8, 4 and 3. Four days afterwards it spread to Muttya, a small village of 406 inhabitants, in the Honávar Táluka, where there were 4 fatal cases. The attacks and deaths for January were 54 and 32 respectively. In February it disappeared from Mundgod Petha, but continued in the other 3 tálukas, the attacks and deaths were 20 and 11. In March there were 2 fatal cases, 1 in the Honávar Táluka and the other in the Supa Táluka. In April it appeared in the town of Haliyál where there were 3 fatal cases. In May it spread in three villages of the táluka and there were 4 more attacks in Haliyál town and 2 deaths. During July and August the district was free; but in September it appeared in the town of Yellapur, and there were 6 deaths out of 10 attacks. The last case of the year occurred on the 15th October, and the total of attacks and deaths were respectively 119 and 74. Except for Thar and Parkár, these numbers are the lowest in the Presidency. The percentage of deaths to attacks was 60·2, and the ratio of deaths for 1,000 of population was 0·19; in the previous year it was 7·04.

Ratnágiri.

39. In Ratnágiri the year closed with cholera in the tálukas of Ratnágiri, Sangameshvar and Khed. In January it disappeared from the two first, but continued in the last, and on the 4th there was a fatal case at Bágwantgad, a small village of 158 inhabitants in the Málvan Táluka. Next day it spread to Málvan, a neighbouring village in the táluka of that name, and there were 4 deaths out of 17 seizures. On the 18th it appeared at Chiplún, and in 4 days there were 24 cases and 19 deaths: at Chinchgar and Suseri, in the Khed Táluka, there were 17 attacks and 12 deaths. It was reported that the disease had been brought to Suseri from Chinchgar, distant 1½ mile. The attacks and deaths for January were 83 and 50. In February it continued in the Málvan and Chiplún Tálukas, left Khed and appeared in the Dápoli Táluka. The attacks and deaths were 140 and 86. In March it disappeared from Málvan and Chiplún, but continued in Dápoli, and there were 49 deaths out of 76 seizures. In April there were only 24 attacks and 19 deaths, and in May there was the same number of deaths in Dápoli Táluka (19); but in that month it re-appeared in the Chiplún and Khed Tálukas, causing 10 deaths out of 15 seizures. The attacks and deaths for the month were 45 and 29. In June it spread to 2 villages of the Rájápur Táluka, and in July the maximum mortality occurred: there were in that month 233 attacks and 147 deaths; in August there were 64 attacks and 47 deaths; in September 28 and 12; and in October, 14 and 10. In November it was in the Chiplún, Khed, and Dápoli Tálukas, but only in one village of each causing 35 deaths out of 40 seizures. After the 18th November the district was entirely free. The attacks and deaths for the year were 869 and 559,—the percentage of the latter to the former being 64·3. The ratio of deaths per 1,000 of population was 1·23 and 1·10 for the Dápoli and Chiplún tálukas respectively, and for the district it was 0·55. For the quinquennial period ending with 1876 it was 0·83.

Kolába.

40. In the Kolába District there were 24 deaths from cholera in the Mahád Táluka, during December 1877, and in January 1878 there were 15 attacks and 12 deaths at Goti Bk., a small village of 267 inhabitants in the same táluka. The last case was on the 6th, and from this time until the 29th May the district was free. On that date there were 2 fatal cases at Wewdsee in the Pen Táluka, and during June it spread rapidly through the district, the only places exempt being the town of Alibág and Nagotna Petha. In the second week of this month the Collector reported a severe out-break at Nagaon in the Alibág Táluka, and although he was on the spot, and all precautions were taken, there were 92 attacks and 66 deaths. In this month the disease appeared in 18 villages, and out of 459 seizures there were 321 deaths,—the percentage of deaths to attacks was 70·0. In July it disappeared from the Mangaon and Mahád Tálukas, but appeared for the first time in the town of Alibág. In this month 373 persons were attacked and 206 died. In August it was less severe although the attacks and deaths were 272 and 198 respectively; in September it was confined to 4 villages of the Pen and Roha tálukas, of which the collective population was 1,911: amongst these there were 70 attacks and 47 deaths; in October there were only 3 attacks, of which 1 ended fatally on the 12th. It was the last for the year. For the district generally the attacks and deaths for the year were respectively 1194 and 787—the latter being in the proportion of 66 per cent. The ratio of deaths per 1,000 of population was 2·25.

Bombay city.

41. In Bombay city there was cholera more or less throughout the whole of 1877, and in January 1878 there were 52 attacks and 35 deaths. From February to August they were as follows:—

115	attacks and	109	deaths in	February.
284	do.	224	do.	March.
171	do.	128	do.	April.
149	do.	137	do.	May.
144	do.	99	do.	June.
202	do.	156	do.	July.
142	do.	116	do.	August.

42. In September there were only 48 attacks, but 43 of them were fatal. For October the numbers are slightly higher, but in November and December there were merely a few cases here and there. For the year the attacks and deaths were 1,444 and 1,165, and the percentage of the latter to the former is 80. The ratio of deaths per 1,000 of population is 1·81. For a period of 21 years the mean annual mortality is 1,242; whilst in 1864 it reached the maximun of 4,847; in 1874 it was only 19. The details are here given:—

Years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1857	459	165	306	363	249	302	157	86	32	31	18	13	2,181
1858	19	9	8	15	11	9	5	8	11	6	7	7	115
1859	9	10	9	7	69	843	329	170	41	85	131	282	1,985
1860	289	332	396	321	163	107	89	128	51	47	29	9	1,961
1861	15	18	5	4	12	18	13	10	11	34	35	466	641
1862	625	240	339	266	367	218	117	95	161	272	201	262	3,170
1863	89	50	89	161	153	161	412	240	178	181	176	319	2,209
1864	622	401	302	680	837	395	371	351	232	88	137	431	4,847
1865	363	540	522	356	624	206	116	62	31	32	22	13	2,887
1866	13	15	12	16	21	15	27	43	63	49	31	27	332
1867	11	21	12	26	5	9	5	5	7	6	4	...	111
1868	1	...	...	3	3	2	4	6	1	43	63	101	227
1869	157	93	97	91	82	41	54	47	60	26	3	3	754
1870	6	3	5	3	7	12	4	73	76	41	64	92	386
1871	68	41	37	24	15	10	3	11	13	29	8	4	263
1872	7	2	4	7	6	7	46	54	32	11	3	11	190
1873	22	13	17	12	8	7	3	1	2	3	2	2	92
1874	1	...	2	2	7	...	2	1	2	2	...	...	19
1875	1	1	...	31	67	132	279	168	43	53	38	21	834
1876	1	...	2	4	5	9	119	141	64	23	6	...	374
1877	1	61	111	185	337	704	495	337	162	42	21	54	2,510
Means for 21 years ...	132	96	108	122	145	153	126	97	61	53	48	101	1,242
1878	35	109	224	128	137	99	156	116	43	53	40	25	1,165

43. In the Thána District also cholera had been very prevalent in 1877 and on the 1st day of 1878 it was in two villages of the Salsette Táluka, and four days afterwards it re-appeared in the town of Panvel; here the last case was on the 15th January, and on that day it appeared in the Karját Táluka, where, within a fortnight, there were 185 attacks and 133 deaths. Dr. McRury, the then Deputy Sanitary Commissioner, noticed in his report the general insanitary condition of the place and the contamination of its water-supply: it was also said that the disease had been brought from Panvel. The attacks and deaths for January were 250 and 172,—and the percentage of the latter was 69. In February it continued in the areas affected, except Panvel town, and appeared in the Máhim, Bhiwandi, and Kályan Tálukas, where there were 238 cases and 149 deaths. In March it left Kályan and Salsette and Karjat, but continued though less severely in the Máhim, Bhiwandi, and Panvel Tálukas; the attacks and deaths for the month were only 45. and 18. In April it was only in five villages of the Máhim and Bassein Tálukas, but there were 169 seizures and 64 deaths. In May it continued in the tálukas named, re-appeared in those of Bhiwandi, Salsette, and Karjat, and appeared for the first time in the Dahanu Táluka. The attacks and deaths were 227 and 142. In June it increased in intensity, and there were 560 attacks and 361 deaths—a percentage of 65. In July the mortality reached its maximum of 463 deaths out of 685 seizures. It had increased generally except in the Vára Táluka and the town of Panvel. During August there were 414 attacks and 260 deaths, and in September they fell to 39 and 24; in October they rose to 90 and 62, the percentage being 58; in November they were 82 and 54; and in December 48 and 40. The last case was on the 21st at Sakhordi, a village in the Shahápur Táluka. The totals of attacks and deaths for the district were 2,817 and 1,809, and the ratio of deaths per 1,000 of population was 2·13; for the town of Thána, it was 5·24, and for Kalyán 4·53.

Thána.

44. In Surat there was cholera up to the close of 1877, and in January 1878 it continued in the town of Surat. On the 9th there were 3 attacks and 1 death at Orgaon, a village of the

Surat.

Bárdoli Táluka, and on the 10th there was 1 fatal case at Dindori in the Chorási Táluka. It then spread to 9 other villages, and 1 death was reported from Sadlar in the Jalálpor Táluka. The collective population of the areas affected was 118,476, and the attacks and deaths were 93 and 90. In February it disappeared from the Bárdoli and Jalálpor Tálukas, but continued in Chorási and the city of Surat, and appeared in the Olpád Táluka. The attacks and deaths were 153 and 100. In March there were only 31 deaths and 28 fresh seizures. In April it appeared for the first time in the Chikhli Táluka, and re-appeared in that of Jalálpor and extended to the town and Cantonment of Surat. The type, too, was severe, for the attacks and deaths were 406 and 225 respectively. During May it continued in the areas previously affected, and re-appeared in a village of the Bardoli Táluka. There were 474 cases and 299 deaths and in June there were 582 and 432. In July it continued in the affected areas, and appeared for the first time in two villages of the Bulsar Táluka, but the attacks and deaths fell to 285 and 211. In August there was a further fall to 93 and 52, and in September there were 142 and 73. In October they rose to 232 and 157, and in November they were 76 and 56, the last fatal case of the year being on the 30th. For 11 months out of the 12 it prevailed in all the Registration Circles, excepts Bulsar town, and the totals of attacks and deaths were 2,564 and 1,726. The percentage of the latter was 67·3, and their ratio per 1,000 of population was 2·84.

Broach.

45. In the Broach District cholera first appeared on the 27th January at Anklesvar where there were 2 fatal cases. In February it continued at that place, and appeared in the town of Broach: there were 8 seizures and 5 deaths. During March it increased in severity, and the attacks and deaths in Broach and 9 surrounding villages were respectively 193 and 96. For the whole district, in April, they were 380 and 169. In May they were 574 and 308, and in June the maximum mortality occurred: there were in that month 312 deaths out of 512 seizures. In July, though it continued in the affected areas and appeared for the 1st time in Balsar Táluka, the attacks and deaths fell to 265 and 115. In August they were only 30 and 19, and in September the district was free. The last fatal case of the year was on the 12th October, and it was the only one. The attacks and deaths for the year were 1,965 and 1,027. The percentage of the latter being 52·3, and their ratio per 1,000 of population 2·93.

Kaira.

46. At the close of 1877, in the Kaira District, cholera was present in the Town of Nadiád and the Tálukas of Nadiád, Thasra and Kapadvanj. In January it disappeared from Thásra, continued in the other tálukas, and appeared in that of Mátar, where, in 6 villages, there were 42 attacks and 25 deaths—a percentage of 59·5. In February it was confined to 3 villages of the Kapadvanj Táluka, and there were 7 deaths out of 9 seizures. In March it spread to all the circles—town and rural—except Mehmadabad R. C. It was present in 65 villages whose collective population numbered 158,239, and there were 811 attacks and 404 deaths. During March it abated, but in April in the last fortnight it increased, and with increased severity. It spread to all the circles, and the attacks and deaths were 1,201 and 560. In May they were 793 and 357, and in June it disappeared from the Mehmadabad and Borsad Tálukas: in this month there were 190 deaths out of 382 seizures. In July they fell to 118 and 50; the disease was confined to the towns of Nadiád and Borsad, and to the Tálukas of Borsad, Thasra, A'nand and Kapadvanj. The last fatal case of the year was on the 25th September at Naika, a small village of 2,276 inhabitants, in the Mátar Táluka. The attacks and deaths for the year were 3,357 and 1,594, and the percentage of the latter was 47·5, whilst their ratio per 1,000 of population was 2·04.

Panch Maháls.

47. In December 1877 there were 54 deaths in the Panch Maháls, and on the 1st January 1878 two cases were reported from Mehilal and Ranpur, 2 villages in the Godhra Táluka; they both ended fatally on the 31st. There were also 2 fatal cases at Tiwrajpur, a small village in the Hálol Táluka. There were also 15 attacks and 12 deaths in the Town of Dohad, so the numbers for the month were respectively

53 and 33. In February it disappeared from the Town of Dohad and from the Godhra Táluka, but appeared in Godhra Town and continued in the Hálol Táluka: but there were only 5 seizures and 4 deaths. In March there were 85 fatal cases and 148 attacks. In April it spread to 115 fresh villages, and the attacks and deaths were 1,512 and 926. During May every circle was affected, and there were 1,458 deaths out of 2,126 seizures. It disappeared from 20 villages previously affected, but appeared in 88 others, and in the 2 large towns of Dohad and Godhra. In June it continued in the affected areas, but the attacks and deaths fell to 1,700 and 1,379. In July they again fell to 292 and 222, and in August they were only 30 and 22. The last case was on the 14th September. The attacks and deaths for the year were 5,870 and 4,130, and the percentage of the latter was 70·4, their ratio per 1,000 of population being 17·15. In the Jhalod Táluka this ratio was 25·25, the highest recorded. The severity of the visitations may be judged from the fact that whilst the total mortality for the 12 years from 1866 to 1877 was 3,140, it was 4,130 for the one year 1878.

Ahmedabad.

48. In the Ahmedabad District there were 106 deaths from cholera in December 1877, and in January there were 7 out of 8 seizures. In February there were no cases, but in March there were 124 and 99 deaths. On the 1st of March it appeared in the Ahmedabad and Viramgam towns, and a fortnight after in 9 villages of the Dholka Táluka. In April it continued in the areas affected, and appeared in the Tálukas of Baskroi, Sanand and Parintíj and re-appeared in Viramgam Táluka. There were 69 villages affected, and the attacks and deaths were 859 and 654, the percentage of the latter being 76·1. During May it spread through all the circles, and there were 1,146 deaths out of 1,431 seizures, a percentage of 78·9. In the town of Ahmedabad there were 404 cases and 365 deaths, and in the Dhandhuka Táluka there were 569 and 470. It disappeared from 8 villages, but appeared in 67 others, and the population of the affected areas was 114,732. In June it disappeared from the Ahmedabad Cantonment, but continued everywhere else. In the Dhandhuka Táluka the deaths fell from 470 to 107 and in Ahmedabad city they were 57 only. For the month they were 981 and 629, the percentage of the latter being 64. In July it disappeared from 3 tálukas, continued in 7 and re-appeared in the Cantonment of Ahmedabad, there were 316 fresh cases and 193 deaths. During August it prevailed in the towns of Ahmedabad and Gogo, and in the Tálukas of Gogo, Dhandhuka, and Parántíj, but there were only 139 seizures and 58 deaths. In September there were 18 attacks and 3 deaths, and the last fatal case of the year occurred on the 22nd October. For the district generally the attacks and deaths were 3,900 and 2,793, and the percentage of the latter was 71·6, whilst their ratio per 1,000 of population was 3·37

Thar and Parkar

49. On the 24th March cholera was reported from two villages of the Nagar and Parkar Táluka of the Thar and Párkar District. There were 7 deaths out of 16 seizures in March and in April, it left these villages, but appeared in another in the same táluka where there were 42 attacks and 19 deaths. The last fatal case of the year was on the 12th April.

Rural circles or Tálukas.

50. The subjoined table shows in order of percedence those rural circles or tálukas in which the deaths from cholera exceeded 5 per 1,000 of population. It will be seen that it was for the most part confined to 12 tálukas of Khándesh, 5 of the Panch Maháls, 4 of Belgaum, 3 of Sátára, 2 each of Ahmednagar, Poona, Kaládgi, and Surat, and 1 each of Sholápur, Dhárwár, Ahmedabad, Kaira, Násik, Broach, and Kolába. The last column gives the towns shown on the cholera map opposite page 28. Heading the list is the Jhalod Táluka in the Panch Maháls: the ratio of deaths per 1,000 of population there was 25·25, for the Dohad Táluka, also in the Panch Maháls it was 22·35, and for Godhra, similarly placed, it was 16·76. For the Sampgaon Táluka, in Belgaum, it was 12·64, and for Holál in the Panch Maháls again it was 11·18. In 3 tálukas it was between 10 and 11, in 2 between 9 and 10, in 3 between 8 and 9, in 5 between 7 and 8, in 6 between 6 and 7, and in 14 between 5 and 6: the minimum of 5·03 was in the Malsiras Táluka of the Sholápur District.

No.	Districts.	Names of Tálukas.	Population of Tálukas by Census.	Number of Cholera Deaths.	Ratio of Deaths per 1,000 of Population.	Corresponding number in the Cholera Map.
1	Panch Mahâls ...	Jhálod	36,785	929	25·25	191
2	Do. ...	Dohad	52,041	1,163	22·35	189
3	Do. ...	Godra	6,373	1,062	16·76	188
4	Belgaum... ...	Sampgaon ...	131,504	1,612	12·64	91
5	Panch Mahâls ...	Hálol	25,926	290	11·18	192
6	Khándesh ...	Páchora	54,313	575	10·59	5
7	Panch Mahâls ...	Kálol	40,505	429	10·59	190
8	Belgaum... ...	Parasgâd ...	120,691	1,254	10·40	94
9	Khándesh ...	Shirpur	34,642	355	10·24	14
10	Dhárwár... ...	Dhárwár... ...	72,295	685	9·47	101
11	Khándesh ...	Ravier	25,301	239	9·45	18
12	Sátára	Sátára	90,629	787	8·68	75
13	Do.	Wái	75,033	629	8·38	77
14	Khándesh ...	Taloda	35,278	288	8·16	11
15	Do. ...	Edalabad ...	20,847	164	7·87	20
16	Do. ...	Jámner	70,351	547	7·77	22
17	Sátára	Karád	121,712	937	7·70	78
18	Ahmedabad ...	Dhandhuka ...	124,860	926	7·41	197
19	Khándesh ...	Virdel	63,350	449	7·09	13
20	Do. ...	Chálisgaon ...	44,568	311	6·98	7
21	Do. ...	Amalner... ...	51,611	357	6·95	2
22	Belgaum... ...	Belgaum... ...	102,344	668	6·53	90
23	Khándesh ...	Párola	28,252	178	6·30	3
24	Kaira	Thásra	85,601	529	6·18	181
25	Násik	Nándgaon ...	30,230	185	6·12	34
26	Surat	Chorási	45,435	288	5·95	162
27	Khándesh ...	Chopda	37,882	223	5·89	15
28	Belgaum... ...	Gokák	97,085	536	5·52	95
29	Ahmednagar ...	Nevása	62,418	341	5·46	46
30	Kolába	Alibág	61,474	335	5·44	139
31	Poona	Indápur	62,392	330	5·29	55
32	Ahmednagar ...	Nagar	73,064	381	5·21	40
33	Kaládgi	Indi	105,475	547	5·19	117
34	Poona	Purandhar ...	75,732	388	5·12	58
35	Surat	Jalalpur... ...	70,112	359	5·12	164
36	Kaládgi	Bágevádi ...	93,738	476	5·08	120
37	Broach	Anklesvar ...	41,087	209	5·08	173
38	Khándesh ...	Nandurbár ...	38,080	192	5·04	10
39	Sholápur... ...	Málsiras	55,048	277	5·03	71

Towns.

51. Out of 55 Town circles (the number in the Presidency) 41 were affected by cholera, and in 19 the death-rate exceeded 5 per 1,000 of population; of these 19 towns 4 were in Khándesh, 3 each in Sátára and Sholápur, 2 in Ahmednagar, and 1 each in Poona, Belgaum, Kolába, Thána, Broach, Panch Mahâls, and Ahmedabad. They are given in the subjoined table, and the last column facilitates reference to the cholera map opposite page 28. In the statement (p. 26, appendices) appended to the map there are exhibited the name of each district affected, the name and number of each circle, its population, the dates of first and last case, the total of cholera deaths, and their ratio per 1,000 of population, the period of maximum intensity, the number of villages in each circle, and the number affected :—

Number.	Districts.	Names of Towns.	Population of Towns by Census.	Deaths.		Corresponding number in the Map.
				Number.	Ratio per 1,000 of Population.	
1	Sátára	Wái	11,062	225	20·34	89
2	Panch Mahâls ...	Dohad	11,472	221	19·26	194
3	Khándesh	Nasirábad	9,941	156	15·69	26
3	Sholápur	Barsi...	18,560	259	13·95	73
4	Do.	Pandharpur	16,275	220	13·52	74

Number.	Districts.	Names of Towns.	Population of Towns by Census.	Deaths.		Corresponding number in the Map.
				Number.	Ratio per 1,000 of Population.	
6	Ahmednagar	Nagar	32,841	420	12·80	51
7	Sátára	Karád	11,410	136	11·92	88
8	Khándesh	Chopda	13,699	163	11·90	25
9	Broach	Jambusar	14,924	177	11·86	176
10	Khándesh	Dhulia	12,489	110	8·81	23
11	Do.	Nandurbár	7,205	61	8·47	24
12	Sátára	Sátára	24,484	166	6·78	87
13	Ahmednagar	Sangamner	9,978	61	6·11	52
14	Sholápur	Sholápur	53,403	309	5·79	72
15	Ahmedabad	Viramgáum	19,661	111	5·65	204
16	Kolába	Mobad	6,631	35	5·28	145
17	Belgaum	Belgaum City ...	5,330	28	5·25	100
18	Thána...	Thána	14,299	75	5·25	157
19	Poona...	Poona City	90,436	457	5·05	62

From the above table it will be seen that Wái, in the Sátára district, suffered most. There, out of its 11,062 inhabitants, 225 died from cholera: a ratio of 20·34 per 1,000. For Dohad, in the Panch Maháls, it was 19·26 and 15·69 for Nasirábad in Khándesh. In other towns it ranged from 13·95 to 5·25 per 1,000, and for Poona city it was 5·05 the minimum.

Villages.

52. As regards the villages affected, there were 512 out of 2,625 in Khándesh, 393 out of 1,352 in Sátára, and 353 out of 638 in the Panch Maháls. In Belgaum there were 322 out of 1,085, in Sholápur 222 out of 647, in Kaira 206 out of 577, and for Ahmedabad 236 out of 888. In other districts the proportion of affected villages was comparatively small; for instance, in Thar and Párkar, there were only 3 out of 1,585, in Kánara there were 14 out of 972, and 37 out of 915 in Kolába. In the cold season (November to February inclusive) 151 villages were attacked; in the hot weather (March to June) the number was 2,241 and during and after the rains 1,173, so, taking the total as 140, the proportional distribution would be 4 in January, 2 in February, 6 in March, 21 in April, 31 in May, 30 in June, 21 in July, 16 in August, 7 in September, and 2 in October. These details are tabulated in the Statement on page 28.

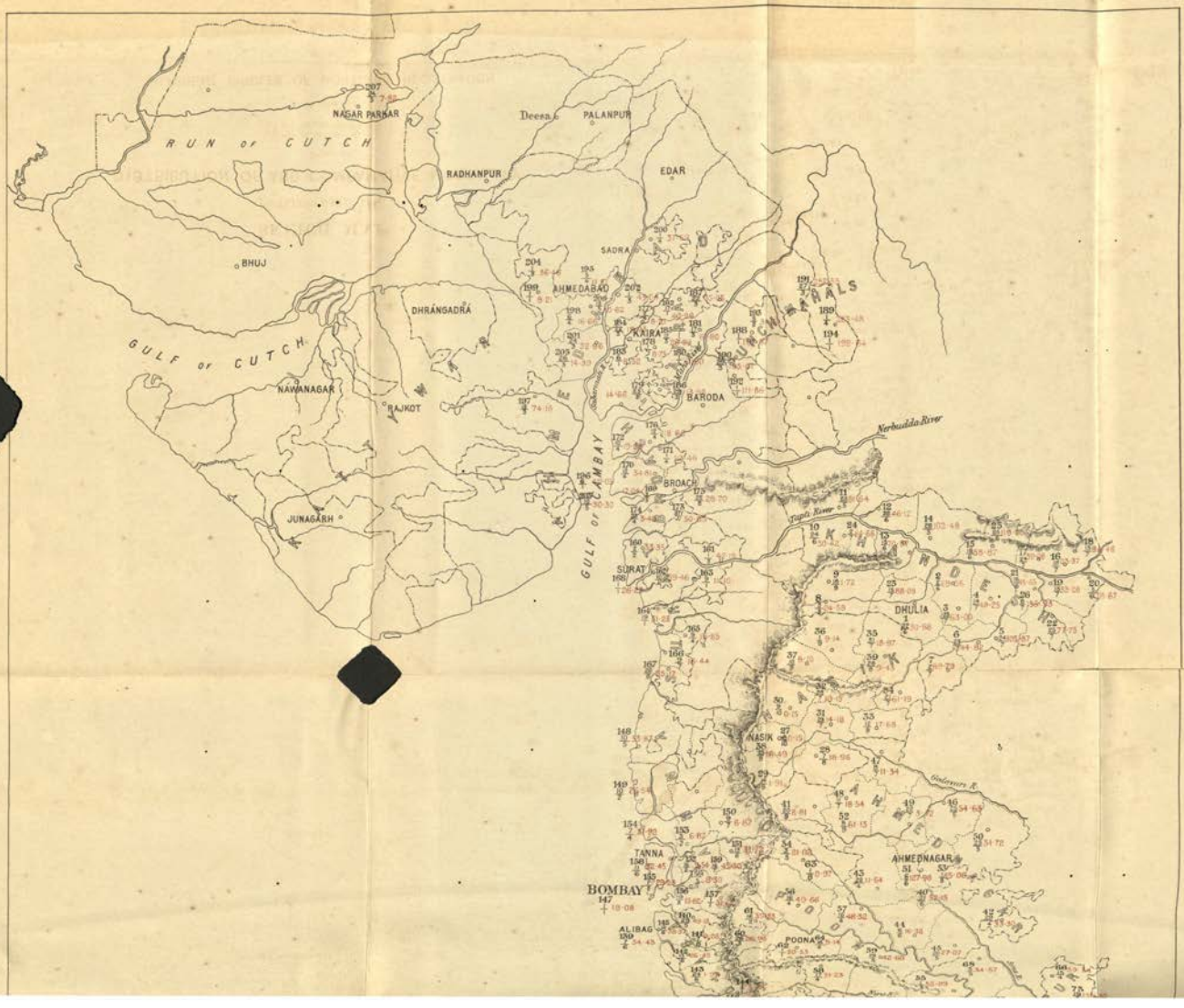
Attacks and deaths.

53. The map between pages 28 and 29 shows the distribution and mortality in each Registration circle of the Presidency in which cholera was present, and the statement on page 29 gives the relation of attacks to deaths month by month in each district. The last column shows the percentage of attacks to deaths. It will be seen that for Khándesh and Kaira these percentages are respectively 47·7 and 47·5. The minimum of 44·8 is recorded for Thar and Párkar, and the maximum of no less than 80·1 is for Bombay city. For Ahmedabad it is 71·6 and for the Panch Maháls 70·4. The ratio is also high for Surat, Belgaum, and Kaládgi, and it is 58·8 for the whole Presidency.

Districts.	Population.	Total number of Villages in the Districts.	Number and Villages affected by Cholera in each Month.																					
			January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Total.	
			Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.
Khándesh	1,023,642	2,625	..	..	..	..	..	..	..	..	3	1,201	37	38,734	152	205,256	238	212,323	72	55,032	..	..	5	5,078	5	3,479	512	521,103
Násik	687,353	1,629	..	..	..	..	..	..	..	..	..	..	..	..	4	140,613	27	26,192	51	76,230	7	7,462	3	4,229	..	..	92	254,726
Ahmednagár	773,938	1,342	..	..	..	..	..	..	2	5,698	15	16,753	33	58,894	66	83,490	32	32,640	22	30,853	5	7,024	..	..	..	..	175	235,352
Poona	*907,235*	*1,184*	*1*	*90,436*	*2*	*4,819*	*3*	*3.276*	*14*	*45,021*	*30*	*35,372*	*85*	*99,624*	*46*	*58,592*	*29*	*53,544*	*12*	*17,2 7*	*1*	*465*	..	..	..	..	*223*	*408,426*
Sholápur	718,034	647	..	..	..	..	..	..	16	91,591	96	124,382	51	65,063	49	77,894	10	12,689	..	..	..	..	..	..	..	..	222	371,619
Sátára	1,061,002	1,352	..	..	..	..	..	..	7	29,322	*76*	*160,460*	*210*	*263,766*	*88*	*130,609*	6	8,340	6	7,598	..	..	..	..	..	..	393	600,095
Belgaum	*938,750*	*1,085*	*30*	*110,314*	*10*	*10,856*	16	40,292	132	178,852	106	138,414	23	39,120	5	10,901	..	..	..	..	..	..	..	..	..	..	322	528,749
Dhárwár	988,037	1,407	..	..	..	..	13	53,926	17	63,062	35	63,469	21	51,653	8	8,841	18	16,695	5	9,419	..	..	..	..	..	..	117	267,065
Kaládgi	816,037	1,201	1	6,000	..	..	7	24,764	34	33,431	88	114,644	32	32,352	14	27,078	..	..	..	..	..	..	..	..	..	..	176	238,269
Kánara	398,406	972	5	21,027	2	4,799	1	..	1	..	3	1,272	..	..	..	..	..	..	1	1,716	1	1,847	..	..	..	..	14	30,661
Ratnágiri	1.019,136	1,249	10	17,016	4	3,001	6	..	2	..	4	1,796	7	8,315	14	14,296	2	7,096	1	. 666	3	1,514	1	595	..	..	54	54,295
Colába	350.405	915	1	267	..	..	..	..	..	..	1	548	18	26,589	8	4,297	7	7,579	4	1,911	..	..	..	..	..	..	39	41,191
Bombay City	644,405	1	1	644,405	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	644,405
Thána	847,424	2,129	11	16,357	9	17,898	4	2,336	5	8,766	13	11,852	23	43,771	42	75,727	17	17,835	2	1,591	7	5,653	5	3,020	1	277	139	205,083
Surat	607,087	853	11	118,476	6	4,333	5	18,513	25	30,176	32	30,632	43	27,719	16	9,359	4	8,785	14	10,914	11	11,922	3	1,644	..	..	170	267,478
Broach	350,322	407	1	9,414	1	36,932	8	5,281	16	28,989	42	28,860	33	32,076	14	18,351	2	3,318	..	..	1	373	..	..	..	..	118	163,594
Kaira	782,733	577	6	25,547	1	2,190	65	158,239	61	116,995	48	79,308	22	29,780	3	8,955	..	..	..	..	..	..	..	..	..	..	206	421,014
Panch Mahális	240,743	638	10	13,539	2	10,739	21	16,592	120	71,055	118	43,237	74	20,521	6	1,663	2	396	..	..	..	..	..	..	..	..	353	177,742
Ahmedabad	829,637	888	3	7,232	..	..	14	171,220	69	95,769	91	114,732	41	29,998	12	8,203	4	2,915	..	..	2	8,013	..	..	..	..	236	438,082
Thar and Párkar	180,761	1,585	..	..	..	..	2	497	1	88	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	585
Total ..	14,170,087	22,686	91	1,080,030	37	95,567	165	494,936	522	798,815	801	966,932	753	867,975	547	884,125	398	405,347	190	213,207	38	44,273	17	14,566	6	3,756	,565	5,869,529

ERRATA.

Circle No. "141" (in the map) should be omitted throughout, and "142" should be read as 141, "143" as 142, "144" as 143, and so on to the end. In circle No. "143" in the map (which should be read as 142) for "1·94" read 4·40.


RUN of CUTCH
NAGAR PARKAR
Deesa
PALANPUR
RADHANPUR
EDAR
SADRA
BHUJ
AHMEDABAD
DHRANGADRA
KAIRA
GULF of CUTCH
NAWANAGAR
RAJKOT
BARODA
Narbudda River
BROACH
Tapti River
JUNAGARH
GULF of CAMBAY
SURAT
DHULIA
NASIK
Godavery R.
TANNA
AHMEDNAGAR
BOMBAY
ALIBAG
POONA

SKETCH MAP

TO ILLUSTRATE THE

DISTRIBUTION OF AND COMPARATIVE MORTALITY

from

CHOLERA

in the

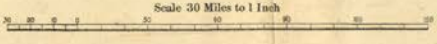
DIFFERENT CIRCLES OF MORTUARY REGISTRATION

OF THE PRESIDENCY OF BOMBAY

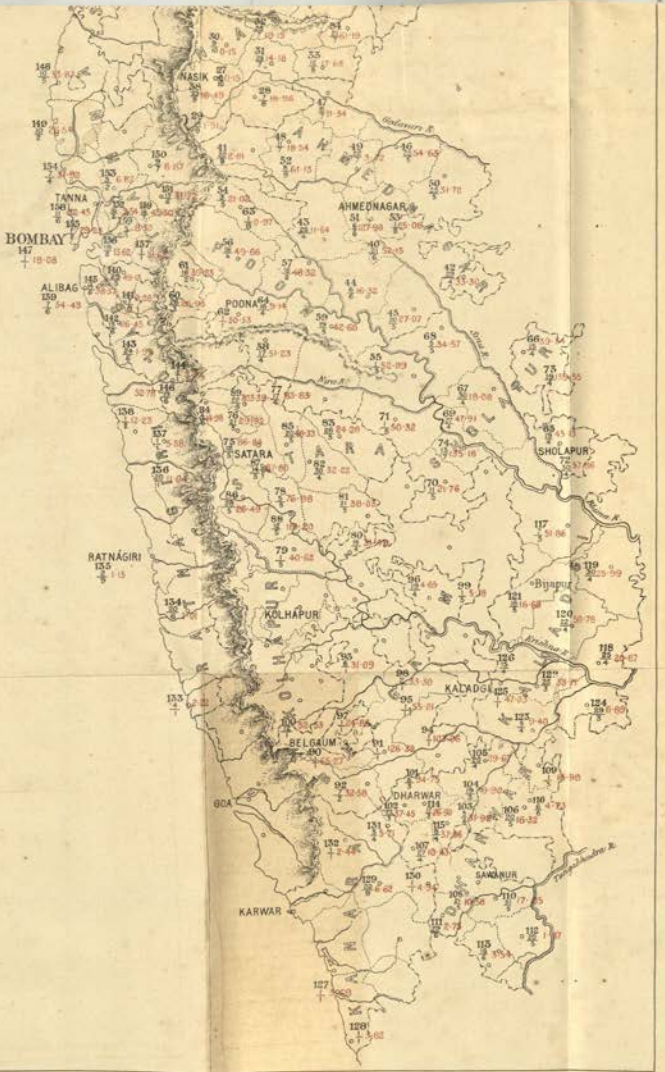
During the Year

1878.

Scale 30 Miles to 1 Inch



N.B. Figures in black ink shew the Number of the Registration Circle. These Numbers are given in Column 3 of the Statement appended to Map.
Figures in red ink shew the ratio of deaths from Cholera per 10,000. of population.
The fractional figures indicate the date of first cases in each circle. Thus $\frac{7}{2}$ means 2nd July.



Gov't Photozincographic Office, Poona. 1879.

Division.	Number.	Districts.	Population.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Total.		Percentage of Deaths to Attacks.
				Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	Attacks.	Deaths.	
Northern Deccan.	1	Khándesh	1,028,642	..	..	..	..	..	..	..	..	15	5	1,021	389	3,431	1,525	6,676	3,356	1,478	725	6	1	65	53	40	28	12,732	6,077	47·7
	2	Násik	687,353	..	..	..	..	..	..	..	..	..	..	..	..	22	18	568	257	896	499	149	81	37	16	..	..	1,672	871	52·1
	3	Ahmednagar	773,938	..	..	..	..	..	..	14	8	222	98	760	365	1,880	1,034	1,060	546	370	180	72	41	..	..	..	..	4,378	2,267	51·8
	4	Poona	907,235	8	2	18	14	35	7	450	229	985	568	2,403	1,292	1,628	933	623	396	305	145	11	15	..	..	..	..	6,466	3,601	55·7
	5	Sholápur	718,034	..	..	..	..	..	..	160	116	2,037	1,189	1,468	705	1,192	909	234	155	..	..	..	..	..	..	..	..	5,091	3,074	60·4
Southern Deccan.	6	Sátára	1,061,002	..	..	..	..	..	..	110	52	1,617	837	6,071	3,157	2,403	1,195	161	94	86	49	3	2	..	..	..	..	10,451	5,386	51·6
	7	Relgaum	938,750	384	259	227	131	547	349	3,695	2,492	2,725	1,979	717	470	121	63	8	1	24	13	..	..	..	..	..	..	8,448	5,757	68·1
	8	Dhárwár	988,037	..	..	..	..	268	156	639	396	664	411	466	291	256	161	410	314	79	61	..	..	..	..	..	..	2,782	1,790	64·3
	9	Kaladgi	816,037	29	16	..	..	108	59	549	360	1,462	987	741	481	426	290	63	37	..	..	..	..	..	..	..	..	3,378	2,230	66·0
Konkan.	10	Kánara	398,406	54	32	20	11	2	2	3	3	19	12	4	2	..	..	..	..	10	6	7	6	..	..	..	..	119	74	62·2
	11	Ratnágiri	1,019,136	83	50	140	86	76	49	24	19	45	29	122	75	233	147	64	47	28	12	14	10	40	35	..	..	869	559	64·3
	12	Kolába	350,405	15	12	..	..	..	..	..	..	2	2	459	321	373	206	272	198	70	47	8	1	..	..	..	..	1,194	787	65·9
	13	Bombay City	644,405	52	35	115	109	284	224	171	128	149	137	144	99	202	156	142	116	48	43	60	53	41	40	36	25	1,444	1,165	80·1
	14	Thána	847,424	250	172	238	149	45	18	139	64	227	142	560	361	685	463	414	260	39	24	90	62	82	54	48	40	2,817	1,809	64·2
Gujarát.	15	Surat	607,087	93	90	153	100	28	31	406	225	474	299	582	432	285	211	93	52	142	73	232	157	76	56	..	..	2,564	1,726	67·3
	16	Broach	350,322	2	2	8	5	193	96	380	169	574	308	512	312	265	115	30	19	..	..	1	1	..	..	..	..	1,965	1,027	52·3
	17	Kaira	782,733	42	25	9	7	811	404	1,201	560	793	357	382	190	118	50	..	..	1	1	..	..	..	..	..	..	3,357	1,594	47·5
	18	Panch Mahals	240,743	53	33	5	4	148	85	1,512	926	2,126	1,458	1,700	1,379	292	222	30	22	4	1	..	..	..	..	..	..	5,870	4,130	70·4
	19	Ahmedabad	829,637	8	7	..	..	124	99	859	654	1,451	1,146	981	629	316	193	139	58	18	3	4	4	..	..	..	..	3,900	2,793	71·6
Sind ..	20	Thar and Párkar ..	180,761	..	..	..	..	16	7	42	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	58	26	44·8
		Total ..	14,170,087	1,073	735	933	616	2,685	1,586	10,354	6,415	15,587	9,964	19,093	10,950	14,128	7,891	10,987	5,928	3,598	1,882	652	434	341	254	124	88	79,555	46,743	
		Percentage of Deaths to Attacks ..		68·5		66·0		59·1		62·0		63·9		57·3		55·8		54·0		52·3		66·6		74·5		71·0		58·8		

Small-pox.

54. In dealing with the statistics of deaths under this head it must be remembered that the number given, as from small-pox, is the recorded number; but in all probability some of them were from measles.

55. The following table shows the number and ratio per 1,000 of deaths in each district:—

Name of Districts.	1878.		1877.	
	Number of Deaths.	Ratio of Deaths per 1,000 of Population.	Number of Deaths.	Ratio of Deaths per 1,000 of Population.
1. Khándesh	240	0·23	5,774	5·01
2. Násik	53	0·07	3,431	4·70
3. Ahmednagar	21	0·02	1,978	2·56
4. Poona	40	0·04	1,312	1·45
5. Sholápur	33	0·04	1,080	1·50
6. Sátára	50	0·05	950	0·89
7. Belgaum	105	0·11	1,112	1·18
8. Dhárwár	109	0·11	2,642	2·67
9. Kaládgi	18	0·02	801	0·98
10. Kánara	68	0·17	473	1·19
11. Ratnágiri	98	0·10	1,239	1·22
12. Kolába	86	0·24	333	0·95
13. Bombay City	353	0·55	953	1·47
14. Thána	81	0·10	1,311	1·53
15. Surat	91	0·14	2,193	3·61
16. Broach	154	0·43	1,036	2·96
17. Kaira	1,061	1·35	125	0·16
18. Panch Mahâls	209	0·86	41	0·17
19. Ahmedabad	1,158	1·39	144	0·17
20. Kurrachee	11	0·03	151	0·35
21. Hyderabad	115	0·16	286	0·40
22. Thar and Párkar	17	0·10	8	0·04
23. Shikárpur	300	0·39	...	...
24. Upper Sind Frontier	4	0·04	6	0·07
Total ...	4,475	0·28	27,369	1·69

It will be seen that 4,475 persons (2,381 males and 2,094 females) are reported during the year as having died; whilst last year the number were 27,369 (13,748 males and 13,621 females), so there is a decrease of 22,894. The highest number of deaths recorded during the year is 1,158 at Ahmedabad; whilst last year the maximum was 5,774 for Khándesh: the minimum (4) is again this year on the Upper Sind Frontier.

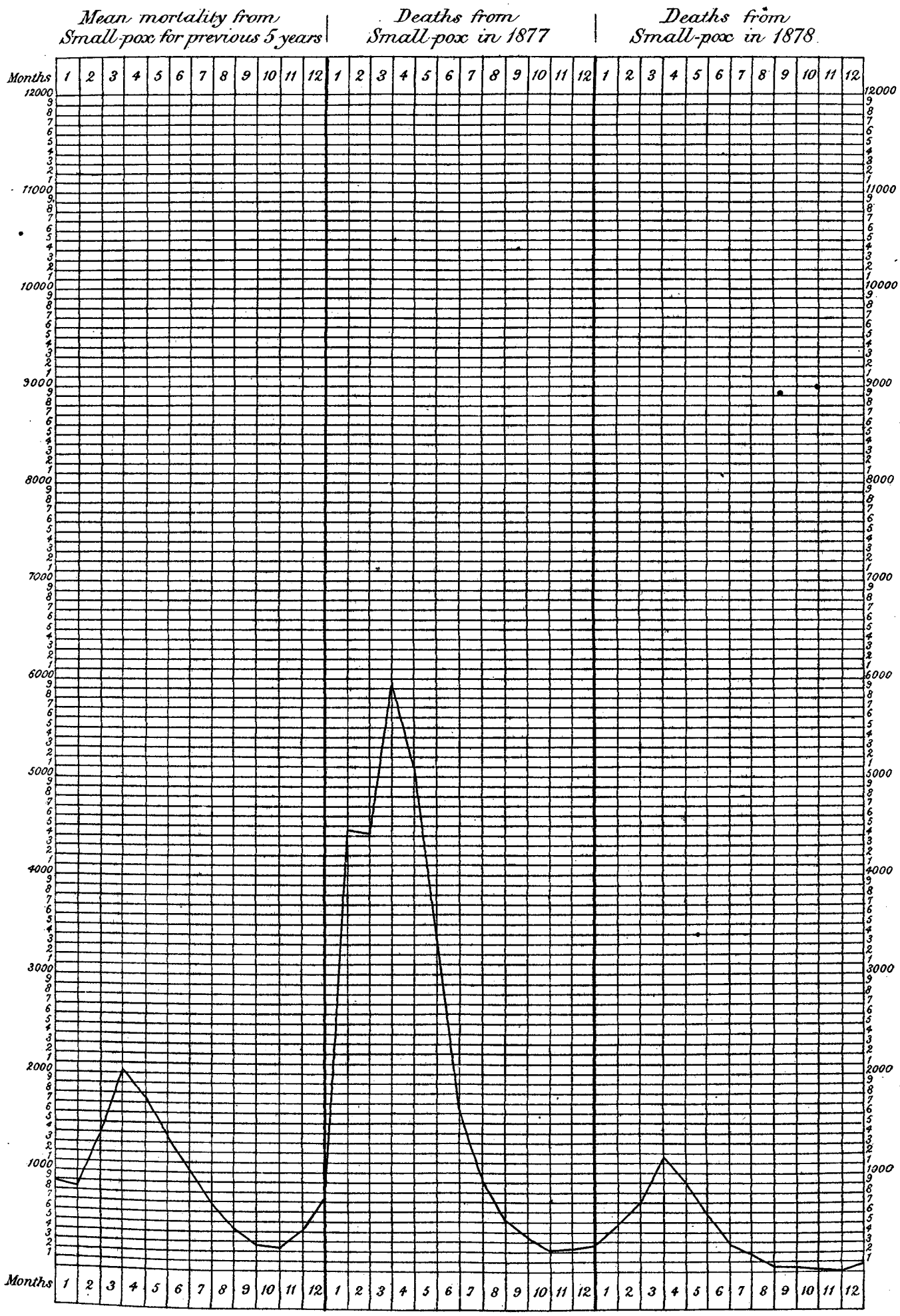
56. The marginal figures, from a period from 1866 to 1878 inclusive, suggest recurring cycles of intensity; but they are irregular. The mean for this period is 10,893, and it was exceeded in 1868-69-72-75 and 77. The total minimum (3,346) was in 1866, and the maximum (27,369) in 1877.

Years.	No. of Deaths.	Years.	No. of Deaths.
1866	3,346	1873	9,935
1867	8,802	1874	3,903
1868	15,183	1875	3,461
1869	12,606	1876	11,817
1870	4,609	1877	27,369
1871	9,403	1878	4,475
1872	26,699	Mean	10,893

57. The following table shows the number of deaths from small-pox for each month of the year, and the number of those under 1 year, under 12, and above 12 :—

	January	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Total Deaths from Small-pox in each month ..	477	694	1,162	905	571	233	184	45	44	27	12	71	4,475
Deaths under 1 year ..	166	276	464	328	218	89	37	15	2	6	3	8	1,612
„ „ 12 „ ..	230	338	597	473	279	119	89	17	13	7	6	30	2,198
„ above 12 „ ..	81	80	101	104	74	75	58	13	29	14	3	33	665

Diagram, shewing for the Bombay Presidency, the mortality from Small-pox for 1877 and 1878, and the mean mortality for the previous 5 years



Photozincographed, Govt Office, Poona, 1879.

58. In the annexed diagram there is shown the monthly small-pox mortality for the year under report (1878), for the year immediately preceding and for the quinquennial period from 1872 to 1876.

Small-pox diagram.

59. It will be observed that the maximum mortality (1,162) was in March, and the minimum (12) in November. From January to March the number rose from 477 to 1,162, and for the latter half of the year the decline was marked.

FEVER.

60. In the year under report there were 357,376 deaths from fever, and of these there were 192,438 of males, and 164,938 of females. From the marginal figures it will be seen that from 1868 to 1872 the numbers have gradually increased, and I think it may be accepted that this is owing to improved registration.

Years.	No. of Deaths.	Years.	No. of Deaths.
1868	97,665	1874	188,717
1869	129,112	1875	129,156
1870	131,035	1876	220,833
1871	167,677	1877	336,865
1872	206,747	1878	357,376
1873	188,201		

61. The following table shows per each district the number of deaths and the ratio per 1,000 of population for the years 1878 and 1877 :—

Name of District.	1878.		1877.	
	No. of Deaths.	Ratio of Deaths per 1,000 of Population.	No. of Deaths.	Ratio of Deaths per 1,000 of Population.
1. Khándesh	23,489	22·54	14,386	13·99
2. Nasik	21,360	31·07	14,899	21·68
3. Ahmednagar	20,248	26·16	19,424	25·10
4. Poona	20,612	22·71	19,753	21·77
5. Sholápur	17,023	23·70	16,941	23·59
6. Sátára	27,351	25·77	31,555	29·74
7. Belgaum	25,381	27·12	25,267	26·91
8. Dhárwár	29,082	29·43	39,915	40·40
9. Kaládgi	16,872	20·67	41,248	50·55
10. Kánara	11,542	28·97	10,662	26·76
11. Ratnágiri	10,667	10·47	8,449	8·33
12. Kolába	4,213	12·02	3,281	9·36
13. Bombay City	9,905	15·37	12,788	19·84
14. Thána	16,017	18·90	15,746	18·58
15. Surat...	10,442	17·20	8,865	14·60
16. Broach	11,956	34·12	5,253	14·99
17. Kaira	23,915	30·55	11,912	15·22
18. Panch Mahals	9,180	38·13	3,037	12·61
19. Ahmedabad	23,518	28·34	11,755	14·18
20. Kurrachee	5,323	13·75	5,350	13·10
21. Hyderabad	8,282	11·47	7,128	9·87
22. Thar and Párkar	3,379	18·69	2,225	12·32
23. Shikárpur	6,517	8·39	6,394	8·24
24. Upper Sind Frontier	602	6·69	632	7·02
Total ...	357,376	22·08	336,865	20·79

62. Although the total for 1878 exceeds that for 1877, there is a marked decrease in the number for Sátára, Dhárwár, Kaládgi, and Bombay city. In the remaining districts there was a general increase. In Broach, Kaira, the Panch Mahals, and in Násik the death-rate exceeded 30 per 1,000. In 10 districts it was upwards of 20 per 1,000. In 8 it was over 10 per 1,000, and in 2 districts only was it below 10.

63. The mortality by months is shown in the following table, and it will be seen that the greatest number of deaths are returned in January, and from August to December :—

Months.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Number of Deaths ..	31,004	23,375	23,624	24,372	25,829	24,359	28,674	34,443	35,718	36,450	37,184	32,344	3,57,376
Ratio per 1,000 of Population	1·92	1·44	1·46	1·51	1·59	1·51	1·77	2·13	2·21	2·25	2·30	1·99	22·08

64. In the annexed two diagrams there are shown the monthly mortality from Fever and Bowel Complaint for the year under report (1878), for the year immediately preceding, and for the quinquennial period from 1872 to 1876.

Fever and Bowel Complaints diagrams.

BOWEL COMPLAINTS.

Years.	No. of Deaths.	Years.	No. of Deaths.
1869	19,361	1874	26,259
1870	30,128	1875	26,990
1871	25,836	1876	33,683
1872	30,422	1877	60,257
1873	33,664	1878	41,165

65. The deaths registered as from bowel complaints were 41,165, and of this number there were 23,204 of males and 17,961 of females. The figures in the margin show that the maximum mortality was in 1877, the year of famine.

66. The following table gives the deaths by months for the last 5 years :—

Years.	DEATHS FROM BOWEL COMPLAINTS.												
	January.	February.	March.	April	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1874	2,062	1,638	1,892	1,860	2,011	2,296	2,701	3,054	2,476	2,457	2,235	2,308	26,990
1875	2,378	1,897	2,147	2,390	2,456	2,862	3,751	4,071	3,584	2,860	2,644	2,610	33,650
1876	2,370	2,132	2,331	2,513	2,662	2,660	3,337	4,123	3,521	2,655	2,681	2,698	33,683
1877	2,777	2,717	3,270	3,527	4,201	5,012	6,799	8,666	9,176	6,825	4,373	2,914	60,257
1878	2,060	2,032	2,238	2,385	2,718	3,558	4,001	6,375	5,495	3,878	3,070	2,755	41,165

67. The subjoined statement shows the mortality by districts :—

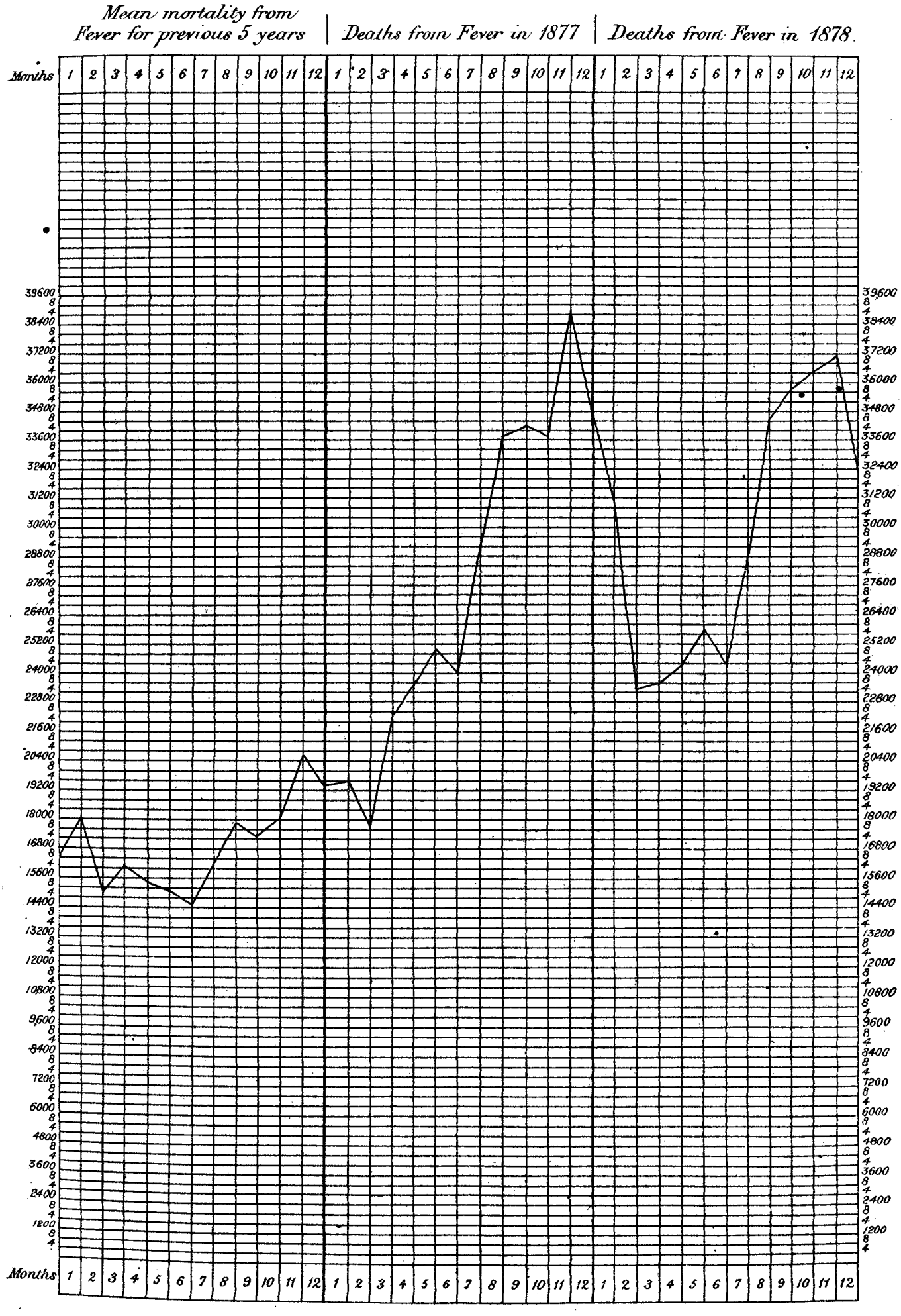
Districts.	Number of Deaths from Bowel Complaints.	Ratio per 1,000 of Population.
Panch Mahâls	1,984	8·24
Khándesh	4,835	4·73
Bombay City	3,028	4·70
Sátára	4,121	3·83
Kánara	1,501	3·76
Kaira	2,902	3·70
Dhárwár	4,072	3·12
Sholápur	2,230	3·11
Náisk	2,010	2·92
Ahmednagar	2,157	2·78
Belgaum	2,540	2·71
Ahmedabad	2,227	2·68
Broach	927	2·64
Surat	1,493	2·45
Poona	1,769	1·94
Ratnágiri	1,851	1·82
Kaládgi	516	0·63
Kolába	215	0·61
Thána	346	0·41
Shikárpur	188	0·24
Kurrachee	97	0·23
Thar and Párkar	38	0·20
Hyderabad	107	0·15
Upper Sind Frontier	11	0·12

INJURIES.

68. The total of deaths from accident or violence was 7,550 (4,227 males and 3,323 females). This number exceeds by 11 the total of the preceding year. The details are here given.—

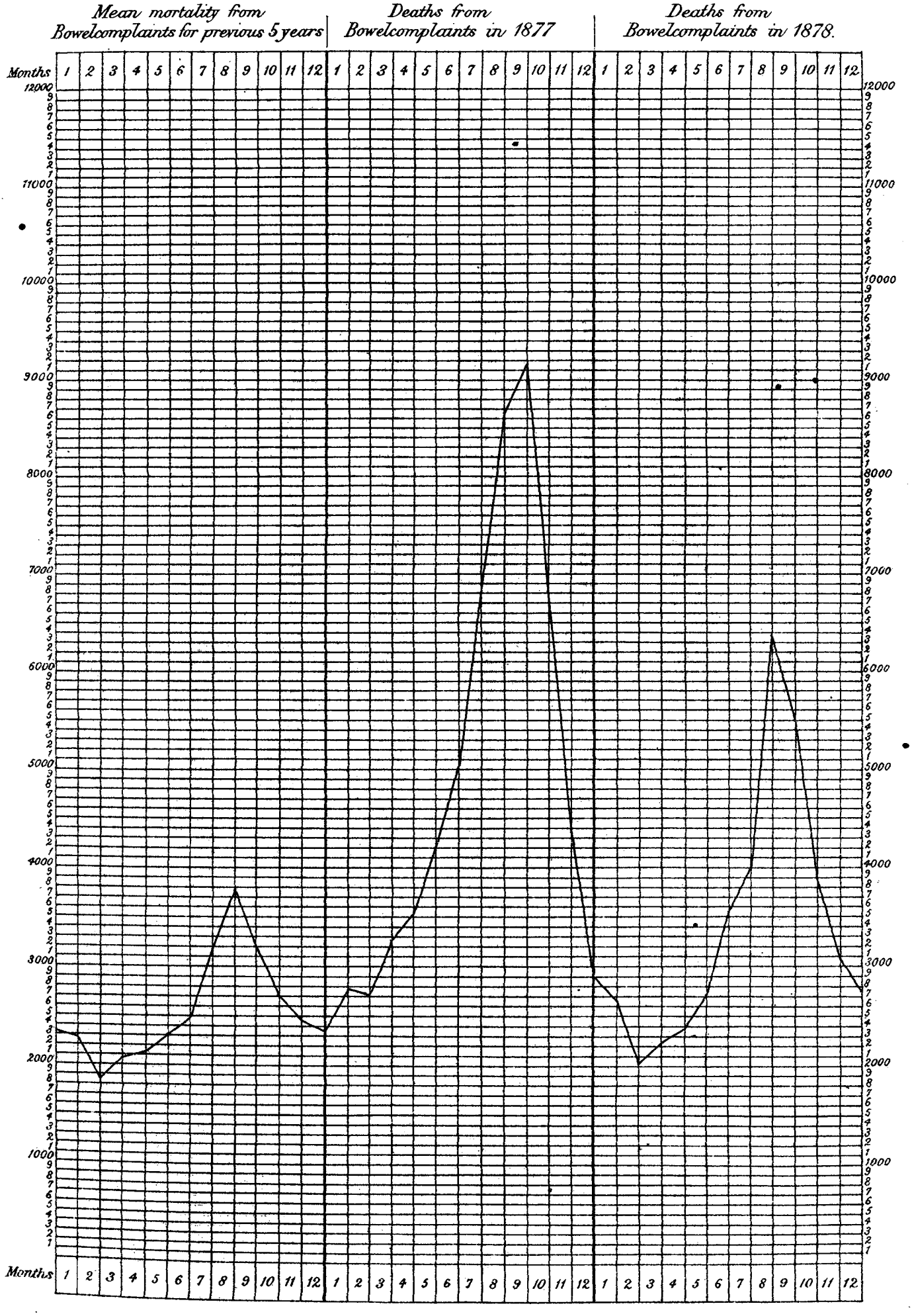
Years.	Suicides.		Wounding or Accident.	Snake-bite or killed by wild Beasts.	Total.
	Males.	Females.			
1877	516	639	5,123	1,261	7,539
1878	508	660	5,282	1,100	7,550

Diagram, shewing for the Bombay Presidency, the mortality from Fever for 1877 and 1878, and the mean mortality for the previous 5 years



Photozincographed, Govt Office, Poona, 1879.

Diagram, shewing for the Bombay Presidency, the mortality from Bowel complaint for 1877 and 1878, and the mean mortality for the previous 5 years



Photozincographed, Govt Office, Poona, 1879.

69. Under suicide for both years there is a preponderence of female deaths, and whilst there is a decrease of 8 in the number of male deaths, those of females are more by 21. There is also an increase of 159 under wounding, and a decrease of 161 under snake-bite and killed by wild beasts.

70. The following table shows the monthly distribution of deaths from snake-bite during the last 5 years, and it will be seen that the largest number obtained as usual during the rainy season :—

Months.	Years.				
	1874.	1875.	1876.	1877.	1878.
January	33	23	43	18	33
February	24	19	32	16	23
March	34	56	47	41	52
April	61	68	57	34	52
May	95	83	82	105	88
June	159	169	148	143	100
July	181	166	193	178	126
August	166	184	160	232	123
September	147	164	156	183	161
October	121	153	154	112	122
November	47	80	58	75	64
December	43	42	34	44	39
Total ...	1,111	1,207	1,164	1,181	983

71. The next table shows the number of deaths from snake-bite according to localities during each of the 5 years ending with 1878. The highest mortality is returned from the districts of Hyderabad, Ratnágiri, and Thána.

Districts.	1874.	1875.	1876.	1877.	1878.
Khándesh	39	40	34	41	24
Násik...	6	32	22	10	9
Ahmednagar	11	8	15	11	9
Poona	29	27	34	19	25
Sholápur	57	47	49	4	9
Sátára	9	10	10	41	34
Belgaum	39	26	35	28	31
Dhárwár	23	34	25	16	18
Kaládgi	26	23	26	13	7
Kánara	17	23	30	37	33
Ratnágiri	102	144	123	102	151
Kolába	21	26	24	19	28
Bombay City	1	8	8	3	6
Thána	111	108	90	129	103
Surat...	39	45	54	48	35
Broach	34	26	27	28	14
Kaira...	106	73	54	90	50
Panch Mahals	38	42	39	60	21
Ahmedabad	75	80	52	58	28
Kurrachee	64	78	94	98	64
Hyderabad	155	183	199	206	195
Thar and Párkar	36	49	50	57	27
Shikárpur	64	66	60	55	59
Upper Sind Frontier ...	9	9	10	8	3
Total ...	1,111	1,207	1,164	1,181	983

Other Causes.

72. There were 75,642 deaths registered under "other causes," (40,671 males and 34,971 females) and for 1877 the total was 138,426.

SECTION III.

GENERAL HISTORY OF VACCINATION.

73. During the year 1878-79 sickness and the exigencies of the service caused the following changes amongst the supervising officers :—

Changes amongst the Supervising Officers.

(*a*). In the Northern Deccan Registration District Dr. Nolan was compelled by sickness to leave the Department from 16th September 1878 to 1st March 1879, and the acting appointment was held by Dr. Bruce from 16th September to 18th October; by Dr. Channer from 19th October 1878 to 14th January 1879; and by Dr. Cody from 15th January to 1st March 1879.

(*b*). In the Southern Deccan Dr. Bainbridge was in charge till 27th April 1878, when Dr. Greany was appointed to act for Dr. Wall, the permanent incumbent absent on sick leave.

(*c*). Dr. MacRury having been transferred to Sind, Dr. Barren held charge of the Konkan from 11th April to 19th June, and Dr. Parker from 20th June to 3rd March 1879, when Dr. Cody resumed charge.

(*d*). In the Western Gujarát Circle, Dr. Welsh, the Superintendent of Vaccination, took two months' privilege leave, and handed over charge to Dr. Batty, the Civil Surgeon of Rájkot, on 24th March 1879.

(*e*). In Sind, Dr. Hopkins, the Civil Surgeon of Kurrachee, was relieved by Dr. MacRury on 15th April, and he again handed over charge to Dr. Channer, as he was temporarily detached for special duty beyond the Frontier Districts from 1st March 1879. Dr. Channer having acted for Dr. MacRury for a few days, was succeeded by Dr. Parker on 18th March 1879.

74. The changes in the strength of the Department may be seen in the table on the opposite page, which shows that there has been, on the whole, an increase of 3 peons and 1 vaccinator in the Kurundvád State. In last year's report those places were pointed out, for which additional vaccinators were required, and arrangements have been made to provide them for the Dhánu and Shábápur tálukas of the Thána District; they are as urgently required elsewhere; but it is a question of money that needs time for its solution.

Strength of the Department.

Section VII, paras. 5, 50, 51, 52

More Vaccinators wanted.

75. Whilst the birth and death statistics are for the calender year, those for vaccination run from the 1st April to the 31st March, so in this report they are for the year 1878-79.

Vaccination year runs from 1st April to 31st March.

76. The following table gives the year's work amongst the Civil Population, and in the Army, including for the first time the returns for British Troops :—

Work amongst the Civil and Military population.

Establishment.	Persons Primarily Vaccinated.			Persons Re-vaccinated.				Total Number of Person Operated on.		
	1878-79.	1877-78.	Decrease.	1878-79.	1877-78.	Increase.	Decrease.	1878-79.	1877-78.	Decrease.
In Civil life.										
Itinerant	540,580	644,338	103,758 16·10	63,358	76,115	..	12,757 16·76	603,938	720,453	116,515 16·17
Dispensary	17,887	20,201	2,314 11·45	3,586	3,356	230 68·53	..	21,473	23,557	2,084 8·85
Total ..	558,467	664,539	106,072 15·96	66,944	79,471	230 0·29	12,757 16·05	625,411	744,010	118,599 15·94
In Army life.										
Native Army	3,008	4,203	1·195 28·43	1,948	1,422	526	..	4,956	5.625	669 11·89
British Army	494	1,313	819 62·38	285	..	36·99 285	..	779	1,313	534 40·67
Total ..	3,502	5,516	2,014 36·49	2,233	1,422	811 57·03	..	5.735	6,938	1,203 17·34
Total for the whole Presidency.	561,969	670,055	108,086 16·13	69,177	80,893	1,041 1·29	12,757 15·77	631,146	750,948	119,802 15·95

No.	Districts and Circles.	Area in Square Miles.	Population according to Census of 1872.	1878-79.																		1877-78.																
				Deputy Sanitary Commissioners.	Superintendents of Vaccination.	Inspectors of Sanitation and Vaccination.	Assistant Superintendents of Vaccination.	Clerks.	Number of Vaccinators.							Number of Peons.					Total Strength.	Deputy Sanitary Commissioners.	Superintendents of Vaccination.	Inspectors of Sanitation and Vaccination.	Assistant Superintendents of Vaccination.	Clerks.	Number of Vaccinators.							Number of Peons.					Total Strength.
									Government.		Municipal.	Cantonment.	Local Funds.	Native States.	Total.	Government.	Municipal.	Local Funds.	Native States.	Total.							Government.		Municipal.	Cantonment.	Local Funds.	Native States.	Total.						
									Civil.	Military.																	Civil.	Military.											
1	Northen Deccan Registration District.	38,960	4,296,187	1	..	7	...	2	...	...	9	1	59	2	71	11	8	59	2	80	161	1	...	7	...	2	...	...	9	1	58	2	70	11	8	58	2	79	159
2	Southern Deccan Registration District.	28,110	5,554,665	1	...	5	1	2	...	...	9	...	43	31	83	9	9	43	32	93	185	1	...	5	1	2	...	...	10	...	43	30	83	9	10	43	31	93	185
3	Konkan Registration District ...	15,888	2,915,587	1	...	4	...	2	...	...	2	...	40	3	45	8	2	40	6	56	108	1	...	4	...	2	...	...	2	...	40	3	45	8	2	40	6	56	108
4	Presidency Circle	22	644,405	..	1	...	1	2	...	...	9	...	...	...	9	...	3	...	...	3	16	...	1	...	1	2	...	...	9	...	...	...	9	...	3	...	...	3	16
5	Eastern Gujarát Registration District.	19,743	3,977,490	1	..	5	...	2	...	...	8	...	34	19	61	9	8	35	16	68	137	1	...	5	...	2	...	...	8	...	35	19	62	9	8	35	16	68	138
6	Western Gujarát Circle	26,380	2,815,215	...	1	...	2	2	2	...	...	...	...	41	43	8	...	...	41	49	97	...	1	...	2	2	2	...	...	...	...	41	43	8	...	...	41	49	97
7	Sind Registration District ...	49,307	2,322,765	1	..	6	...	2	...	...	6	...	43	2	51	10	4	43	2	59	119	1	...	6	...	2	...	...	5	...	43	2	50	10	3	43	2	58	117
8	Bároda Circle	10,767	2,000.225	...	...	3	...	...	...	...	...	...	...	31	31	...	...	...	34	34	68	...	...	3	...	...	...	...	...	...	...	31	31	...	...	..	34	34	68
9	Cutch Circle	6,500	487,305	...	...	...	1	...	...	...	...	...	...	15	15	...	...	...	16	16	32	...	...	...	1	..	...	...	...	...	...	15	15	...	...	...	16	16	32
10	Aden	11	•19,289	...	...	...	...	...	...	...	1	...	...	1	1	...	1	...	...	1	2	...	...	...	...	...	...	...	1	...	...	1	1	...	...	...	...	...	1
	Military Stations	...	32,611	...	...	...	...	...	...	3	...	...	...	...	3	...	...	...	...	...	3	...	...	...	..	...	...	3	...	...	...	3	...	...	...	...	...	...	3
	Total	1,95,688	25,065,744	5	2	30	5	14	2	3	44	1	219	144	413	55	35	220	149	459	928	•5	2	30	5	14	2	3	44	1	219	143	412	55	34	219	148	456	924

Number Vaccinated and the total Decrease.

The above figures show that there were 561,969 persons primarily vaccinated and 69,177 re-vaccinated: a total of 631,146 persons operated on. There has thus been a decrease of 119,802 in total operations for the year.

Causes of Decrease.

77. The causes of this decrease are partly due to the general unhealthiness which prevailed throughout the Presidency, accompanied by great distress in Gujarát, Baroda, Káthiáwár, and Cutch, owing to the destruction of the crops by locusts and excessive rain, and in Sind by the unusual heavy inundation. There were also the effects of last year's famine in the north and south Deccan.

The number of the surviving newly-born children successfully vaccinated in each Collectorate.

78. The subjoined table shows the numbers of the newly-born successfully vaccinated, and seeing that the conditions were exceptional, it is to the credit of the working staff that they are so high. It is to be regretted that the figures cannot be given for Native States; for had they been forthcoming, they would have swelled the list to the credit of the vaccinators:—

Collectorates.	Children Vaccinated successfully.		Children available for Vaccination.	Births returned as having been registered.	Deaths registered among children under 1 year.
	Those under 1 year.	Those between 1 and 6 years.			
Khándesh	14,415	11,913	14,401	20,374	5,973
Násik	10,328	3,936	11,954	15,431	3,477
Ahmednagar	9,653	6,978	9,134	12,113	2,979
Poona	8,033	8,576	9,905	11,740	1,835
Sholápur	5,149	5,859	5,551	6,769	1,218
Sátára	11,673	12,343	15,786	18,725	2,939
Belgaum	4,360	8,466	9,541	11,773	2,232
Dhárwár	4,250	6,950	7,366	9,966	2,600
Kaládgi	2,496	6,811	2,147	2,795	648
Kánara	979	5,333	6,092	8,057	1,965
Ratnágiri	9,340	12,241	12,881	13,804	923
Kolába	5,444	2,153	5,304	6,043	739
Thána	9,952	7,613	14,443	16,464	2,021
Bombay City	6,558	2,519	7,479	13,896	6,417
Surat	10,427	3,991	12,543	14,965	2,422
Broach	5,382	1,702	3,956	6,271	2,315
Kaira	16,183	4,117	11,013	15,728	4,715
Panch Maháls	3,269	2,619	2,920	4,464	1,544
Ahmedabad	17,229	4,380	11,663	16,225	4,562
Kurrachee	6,736	3,872	2,274	3,332	1,058
Hyderabad	9,983	6,549	3,568	5,078	1,510
Thar and Párkar	2,663	3,322	2,797	3,439	642
Shikárpur	13,956	6,920	3,703	5,130	1,427
Upper Sind Frontier ...	2,264	1,297	547	671	124
Total ...	190,722	140,460	186,968	243,253	56,285

The successful infantile vaccination out-numbers the registered births, *minus* the infantile deaths.

79. It will be seen that in Khándesh, Kaládgi, Kolába, Broach, Kaira, Panch Maháls, Ahmedabad, Kurrachee, Hyderabad, Shikárpur, and Upper Sind Frontier the successful vaccinations out-numbered the registered births, *minus*, of course, the deaths among those under one year of age, and in the remaining 13 collectorates they were less. In Sátára, Belgaum, Dhárwár, Kánara, Ratnágiri and Thána, where there were very few newly-born children protected by vaccination, more children between the ages of one and six years were successfully operated on. On the whole, in the 24 collectorates, there were 190,722 infants protected, or 3,754 more than those available. This shows how defective are the birth registers.

80. Though there was thus a considerable decrease in the total number of operations both in primary operations and re-vaccinations, yet the quality of the work done compares favourably with that of the previous year. Out of the total of 561,969 persons primarily vaccinated, 292,828, or 52·11 infants per every 100 persons were successfully vaccinated, whereas in 1877-78, though the primary vaccinations, exclusive of British Troops, numbered 668,742 or 106,773 more than in the year under report, yet the number of infants vaccinated successfully was 317,982, or 47·55 per every 100 persons, just 4·56 below the percentage for the present year.

Decrease in the quantity is compensated for by the quality of the work done in attaining success on infants.

81. The subjoined table shows the number of persons primarily vaccinated as well as the increase or decrease during each of the last ten years :—

Primary vaccinations.

Primarily Vaccinated.	Year ending 31st December. 1868.	Years ended 31st March.									
		1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.
Persons	432,184	464,667	496,582	527,153	570,025	625,818	671,817	690,639	732,184	670,055	561,969
Increase	..	32,483	31,915	30,571	42,872	55,793	45,999	18,822	41,545	Decrease. 62,129	108,086

The number of persons primarily vaccinated more than once was 3,836; there was failure in 19,425 operations; whilst in 15,159 instances the results could not be ascertained; and in 531,221 cases it was successful. Thus the total of primary vaccinations was 565,805. Taking the primarily vaccinated as 100, the successful cases for the year are 94·53 against 94·11 for the previous year.

Results in primary vaccinations.

The number of persons primarily vaccinated and the success among them may be seen from the table given below :—

	Years ended 31st March.									
	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.
Number of Persons Primarily Vaccinated	464,667	496,582	527,153	570,025	625,818	671,817	690,639	732,184	670,055	561,969
Ditto successfully.	427,391	452,661	486,018	516,726	568,275	635,982	660,556	698,148	630,590	531,221
Percentage of Success ..	91·98	91·16	92·20	90·65	90·81	94·67	95·64	95·35	94·11	94·53

82. There were 69,177 persons re-vaccinated or 11,716 below the number for 1877-78. Out of these 190 persons were re-vaccinated more than once on failure of the first operation; in 6,672 cases, the result was not known, and 12,865 operations totally failed. Success was attained in 49,830 instances or in other words 72·03 per 100 were successfully re-vaccinated. This is 3·19 below that in the preceding year. The following table shows the number of persons re-vaccinated as well as those successfully operated on for nine years :—

Re-vaccinations.

Results in Re-vaccinations.

	Years ended 31st March.								
	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.
Number of Persons Re-vaccinated	30,119	21,965	18,332	26,405	60,807	117,714	82,993	80,893	69,177
Ditto. successfully	18,950	13,038	10,362	14,894	45,618	94,468	66,770	60,847	49,830
Percentage of Success ..	62·92	59·35	56·52	56·41	75·02	80·25	80·45	75·22	72·03

83. Taking the primary vaccinations and re-vaccinations together 631,146 persons were operated on. Secondary operations were performed on 4,026 persons; 32,290 operations proved unsuccessful, and 21,831 persons escaped observation. The numbers protected were 581,051, so the percentage is 92·06, only 0·02 below that of the previous year.

Total operations.

Results in total operations.

The total number of persons operated on and the success attained are noted below :—

	Years ended 31st March.									
	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.
Persons operated on	464,667	526,701	549,118	588,357	652,223	732,624	808,353	815,177	750,948	631,146
Do. successfully	427,391	471,611	499,056	527,088	583,169	681,600	755,024	764,918	691,437	581,051
Percentage of Success ..	91·98	89·54	90·88	89·59	89·41	93·34	93·40	93·83	92·08	92·06

The re-vaccinations did not commence till after the 31st March 1870.

Primary Vaccinations, re-vaccinations and total operations by Districts and Circles.

84. The details of the total number of persons operated on for the years 1878-79 and 1877-78, when tabulated for districts and circles of vaccination, show that the decrease was a general one, except in the Northern Deccan and Aden, in which the respective rate of increase was 3·39 and 44·16 per cent. Deducting this increase, the net decrease, as stated above, amounts to 119,802, or 15·95 per cent. in the total operations :—

Districts and Circles.	Persons Primary Vaccinated.				Persons Re-vaccinated.				Total number of Persons Operated on.			
	1878-79.	1877-78.	Increase.	Decrease.	1878-79.	1877-78.	Increase.	Decrease.	1878-79.	1877-78.	Increase.	Decrease.
Northern Deccan Registration District.	93,915	90,670	3,245 3·58	..	1,150	1,279	..	129 10·09	95,065	91,949	3,116 3·39	..
Southern Deccan Registration District..	86,636	108,054	..	21,418 19·82	1,715	2,648	..	933 35·23	88,351	110,702	..	22,351 20·19
Konkan Registration District ..	66,147	71,621	..	5,474 7·64	8,828	8,278	550 6·64	..	74,975	79,899	..	4,924 6·16
Presidency Circle .,, ...	10,566	11,743	..	1,177 10·02	2,733	3,243	..	510 15·73	13,299	14,986	..	1,687 11·26
Eastern Gujarát Registration District.	100,883	119,625	..	18,742 15·67	2,807	4,578	..	1,771 38·69	103690	124,203	..	20,513 16·52
Western Gujarát Circle	73,756	98,829	..	25,073 25·37	3,719	3,842	..	123 3·20	77,475	102,671	..	25,196 24·54
Sind Registration District ..	66,023	78,008	..	11,985 15·36	45,284	55,452	..	10,168 18·34	111307	133,460	..	22,153 16·60
Baroda	48,286	71,646	..	23,360 32·60	250	88	162 184·09	..	48,536	71,734	..	23,198 32·34
Cutch	11,312	13,690	..	2,378 17·37	451	57	394 691·23	..	11,763	13,747	..	1,984 14·43
Aden, Bassadore, and Muscat ..	943	653	290 44·41	..	7	6	1 16·67	..	950	659	291 44·16	..
British Army	494	1,313	..	819 62·38	285	..	285	..	779	1,313	..	534 40·67
Native Army	3,008	4,203	..	1,195 28·43	1,948	1,422	526 36·99	..	4,956	5,625	..	669 11·89
Total ..	561,969	670,055	3,535 0·53	111,621 16·66	69,177	80,893	1,918 2·37	13,634 16·85	631146	750,948	3,407 - 0·45	123,209 16·40

Primary vaccinations. Increase and Decrease by Districts and Circles.

85. In primary vaccinations the rate of the greatest decrease was in the Army—British and Native, in Baroda, and the Western Gujarát Circle. The lowest rate is in the Konkan, in the Collectorates of Kánara and Ratnágiri, and the Native State of Sávantvádi, and is attributable to the unhealthy season affecting alike the vaccinators and the people. The decrease in the other districts is in the following order:—the Southern Deccan, Cutch, Eastern Gujarát, Sind, and the Presidency Circle. Deducting the increase in the Northern Deccan and Aden, which amounts to 3,535, or only 0·53 per cent, from 111,621, or 16·66 per cent (being the rate of decrease for the other districts) the net decrease is 108,086, or 16·13 per cent.

Re-vaccinations. Increase and Decrease by Districts and Circles.

86. Out of the 5 districts, 5 circles and the troops British and Native, the decrease in re-vaccinations took place in 4 districts and 2 circles only, which stand in the following sequence :—the Eastern Gujarát, where the rate is 38·69 per cent., Southern Deccan, Sind, Presidency Circle, Northern Deccan, and Western Gujárat Circle, where the rate is only 3·20 per 100. The rates of increase in Cutch and Baroda are 691·23 and 184·09 per cent respectively! The returns of re-vaccination for British troops were available for the first time this year. In the Native Army and Aden the increase is at the rates of 36·99 and 16·67 ; while in the Konkan it is only 6·64. The total increase is 1,918, or 2·37 per cent., and the total decrease is 13,634, or 16·85 per cent. The net decrease is therefore 11,716, or 14·48 per cent.

87. The maximum decrease in the total operations is amongst British troops, being 40·67 per cent. Next in order are Baroda, Western Gujarát, and the Southern Deccan; then come Sind, Eastern Gujarát, Cutch, Native Army, Presidency Circle, and Konkan, where it is only 6·16 per cent. The total increase in the Northern Deccan and Aden amounts to 3,407, or 0·45 per cent, and the total decrease is calculated to be 123,209, or 16·40 per cent. The net decrease is therefore 119,802, or 15·95 per cent.

Total operations. Increase and decrease by Districts and Circles.

88. The next table specifies by Districts and Circles, caste, age, sex, and result in primary vaccinations and sex and result in re-vaccinations, and total operations as contrasted with those in 1877-78, and it also shows the percentages of those particulars. Looking at the total for the Presidency, it will be seen that though the work shows a considerable decrease as regards numbers, there is improvement over that of the last year in the percentages calculated for each kind of detail.

Particulars of vaccine operations by caste, age, sex, and result, with their percentages according to Districts and Circles.

89. There were this year primarily vaccinated 3,347 Christians, 436,951 Hindus, 88,780 Musalmans, 1,542 Parsis and 31,349 persons of Other Castes; so out of every 100 persons primarily vaccinated there were 0·00 Christians, 77·75 Hindus, 15·80 Musalmans, 0·27 Parsis, and 5·58 persons of Other Castes. This last percentage is lower by 0·92 than that for last year, but all the others are higher. If compared, according to each district and circle, the percentage for Christians is lower in Aden by 1·45; in the Presidency Circle by 1·01; in Western Gujarát by 0·02; and in Baroda and Southern Deccan by 0·01 each. The percentage for Hindus is lower in the Presidency Circle by 9·06; in Cutch by 5·18; in the Native Army by 1·72; and in the Konkan by 0·13. Musalmans have a lower percentage in the Southern Deccan by 0·81; in Eastern Gujarát by 0·04; in the Northern Deccan by 0·02; and in Sind by 0·01 only. Parsis have a lower percentage in Aden by 2·92; in the Native Army by 0·19; in the Konkan by 0·04; and in Western Gujarát by 0·03. The percentages for Other Castes are lower in all the districts and circles, except the Presidency Circle and the Native Army. This suggests that vaccinators should strive to afford protection to people of Other Castes—such as Dheds, Mangs, Chambars, &c.

Caste.

90. By ages there were primarily vaccinated 308,684 infants under one year, 233,664 children between one and six years, and 19,621 persons of all other ages; out of these 292,828 infants, 219,916 children between one and six years, and 18,477 persons of all other ages were successfully vaccinated. These numbers, when reduced to test the proportions they bear to 100, show considerable progress over those for past years. Out of every 100 persons primarily vaccinated there were 54·93 infants; of whom 52·11 were protected against 47·55 in 1877-78, and 42·18 in 1876-77, when the progress of vaccination in primary operations reached its maximum.

Age.

Improvement in the infantile vaccinations.

91. In the reports for 1877-78 and 1876-77, before which the "successful" were not distinguished according to ages, the percentage of success attained in each of the three different age periods was calculated on the total of successful cases. In this report these ratios are calculated on the total of persons primarily vaccinated, and this shows more clearly the success attained on infants. As calculated previously the percentage of success among infants would of necessity rise from 52·11 to 55·12, and even then it would be higher than the percentages on similar calculations for 1877-78 and 1876-77, which are 50·53 and 44·66 respectively. On further analysis this proportion of 52·11 per cent. of successfully vaccinated infants is equivalent to 37·69 per cent. of infants estimated on the total population of 25,065,744 at the rate of 31 per 1,000 available for operations. The deduction of this rate of 31 per 1,000 is thus made up. In the report for the year 1874 the birth-rate was assumed to be 40·96 per 1,000 of population, and it has been hitherto known from the figures returned, that, on an average, out of every 1,000 infants born more than 200 die. As late as in 1877 the English death-rate was 136 infants

Method adopted in calculating the percentage of successful vaccination of infants.

Method showing the number of infants available for successful operation, calculated at the rate of 31 per 1,000 of population.

Districts and Circles.	Years.	Persons Primarily Vaccinated.								Total number of Persons Operated on. P. = Primary Vaccinations. R. = Re-vaccinations.		
		Caste.					Age. N. = Number. S. = Successful.			Sex.		Total.
		Christians.	Hindus.	Musalmans.	Parsis.	Other Castes.	Under 1 year.	Between 1 and 6 years.	All other Ages.	Males.	Females.	
Northern Deccan Registration District.	1878-79	320	82,623	4,765	57	6,150	N. 50,234 S. 48,650	40,134 38,743	3,547 3,455	P. 47,872 R. 868	46,043 282	93,915 1,150
										48,740	46,325	95,065
	1877-78	253	78,630	4,612	41	7,134	N. 51,219 S. 48,829	36,314 35,407	3,137 2,952	P. 46,624 R. 921	44,046 358	90,670 1,279
										47,545	44,404	91,949
Southern Deccan Registration District.	1878-79	227	76,224	5,738	2	4,445	N. 33,348 S. 31,793	50,861 47,798	2,427 2,409	P. 44,353 R. 1,386	42,283 329	86,636 1,715
										45,739	42,612	88,351
	1877-78	287	92,799	8,038	5	6,925	N. 49,059 S. 45,735	53,713 49,618	5,282 4,565	P. 56,033 R. 1,944	52,021 704	108,054 2,648
										57,977	52,725	110,702
Konkan Registration District.	1878-79	1,436	58,523	2,812	42	3,334	N. 29,550 S. 28,454	32,142 30,741	4,455 4,156	P. 34,028 R. 5,359	32,119 3,469	66,147 8,828
										39,387	35,588	74,975
	1877-78	1,382	63,465	2,729	71	3,974	N. 28,874 S. 27,610	35,826 35,213	6,921 5,396	P. 37,007 R. 5,373	34,614 2,905	71,621 8,278
										42,380	37,519	79,899
Presidency Circle.	1878-79	757	5,647	2,202	990	970	N. 7,309 S. 6,558	2,927 2,519	240 170	P. 5,376 R. 2,490	5,190 243	10,566 2,733
										7,866	5,433	13,299
	1877-78	959	7,341	1,455	993	995	N. 8,200 S. 7,212	3,205 2,774	338 233	P. 6,248 R. 3,015	5,495 228	11,743 3,243
										9,263	5,723	14,986
Eastern Gujarát Registration District.	1878-79	54	86,561	8,482	332	5,454	N. 65,434 S. 63,956	32,072 30,695	3,377 3,266	P. 53,353 R. 2,313	47,530 494	100,883 2,807
										55,666	48,024	103,690
	1877-78	65	101,784	10,106	340	7,330	N. 66,006 S. 64,055	48,155 46,891	5,464 5,362	P. 62,690 R. 3,578	56,935 1,000	119,625 4,578
										66,268	57,935	124,203
Western Gujarát Circle.	1878-79	14	61,726	7,803	22	4,191	N. 41,848 S. 37,694	30,770 27,459	1,138 997	P. 37,779 R. 2,140	35,977 1,579	73,756 3,719
										39,919	37,556	77,475
	1877-78	37	82,398	10,454	58	5,882	N. 50,982 S. 47,410	45,771 41,708	2,076 1,970	P. 50,574 R. 2,320	48,255 1,522	98,829 3,842
										52,894	49,777	102,671
Sind Registration District.	1878-79	159	12,243	48,864	25	4,732	N. 38,390 S. 36,712	24,712 23,450	2,921 2,600	P. 36,133 R. 23,112	29,890 22,172	66,023 45,284
										59,245	52,062	111,307
	1877-78	107	13,184	57,743	8	6,966	N. 43,082 S. 41,685	31,080 29,647	3,846 3,544	P. 43,194 R. 30,033	34,814 25,419	78,008 55,452
										73,227	60,233	133,460
Baroda	1878-79	5	42,820	3,570	55	1,836	N. 34,175 S. 32,454	13,063 12,147	1,048 961	P. 25,334 R. 184	22,952 66	48,286 250
										25,518	23,018	48,536
	1877-78	15	62,459	5,091	54	4,027	N. 30,159 S. 27,082	38,475 34,480	3,012 2,767	P. 38,684 R. 62	32,962 26	71,646 88
										38,746	32,988	71,734

Results.				Excess of Operations over Persons.	Ratio per 100.															
					Persons Primarily Vaccinated.								Total number of Persons Operated on.			Results.				Excess of Operations over Persons.
					Caste.					Age.			Sex.							
Successful.	Unsuccessful.	Unknown.	Total.		Christians.	Hindus.	Musalmans.	Parsis.	Other Castes.	Under 1 year.	Between 1 and 6 years.	All Other Ages.	Males.	Females.	Total.	Successful.	Unsuccessful.	Unknown.	Total.	
90,848	1,973	1,538	94,364	449	0·34	87·98	5·07	0·06	6·55	53·49	42·73	3·78	50·97	49·03	100	96·73	1·63	1·64	100·48	0·48
728	345	77	1,150	..						51·80	41·25	3·68	75·48	24·52	100	63·30	30·00	6·70	100	..
91,576	2,323	1,615	95,514	449	..	..	..	..	..	..	..	..	51·27	48·73	100	96·33	1·97	1·70	100·47	0·47
87,188	2,138	1,909	91,235	565	0·27	86·72	5·09	0·05	7·87	56·49	40·05	3·46	51·42	48·58	100	96·16	1·73	2·11	100·62	0·62
863	352	66	1,281	2						53·85	39·05	3·26	72·01	27·99	100	67·47	27·37	5·16	100·16	0·16
88,051	2,490	1,975	92,516	567	..	..	..	..	..	..	..	..	51·71	48·29	100	95·76	2·09	2·15	100·62	0·62
82,000	2,125	2,809	86,934	298	0·26	87·98	6·63	0·00	5·13	38·49	58·71	2·80	51·19	48·81	100	94·65	2·11	3·24	100·34	0·34
1,314	280	123	1,717	2						36·70	55·17	2·78	80·32	19·18	100	76·62	16·21	7·17	100·12	0·12
83,314	2,405	2,932	88,651	300	..	..	..	..	..	..	..	..	51·77	48·23	100	94·30	2·38	3·32	100·34	0·34
99,918	2,809	5,808	108,535	481	0·27	85·88	7·44	0·00	6·41	45·40	49·71	4·89	51·86	48·14	100	92·47	2·15	5·38	100·45	0·45
1,941	320	392	2,653	5						42·33	45·92	4·22	73·41	26·59	100	73·30	11·90	14·80	100·19	0·19
101,859	3,129	6,200	111,188	486	..	..	..	..	..	..	..	..	52·37	47·63	100	92·01	2·39	5·60	100·44	0·44
63,351	2,244	908	66,503	356	2·17	88·48	4·25	0·06	5·04	44·67	48·59	6·74	51·44	48·56	100	95·77	2·86	1·37	100·54	0·54
5,043	3,473	312	8,828	..						43·02	46·47	6·28	60·70	39 30	100	57·13	39·34	3·53	100	..
68,394	5,717	1,220	75,331	356	..	..	..	..	..	..	..	..	52·53	47·47	100	91·22	7·15	1·63	100·47	0·47
68,219	2,746	1,134	72,099	478	1·93	88·61	3·81	0·10	5·54	40·32	50·02	9·66	51·67	48·33	100	95·25	3·17	1·58	100·67	0·67
4,590	3,356	332	8,278	..						38·55	49·17	7·53	64·91	35·09	100	55·45	40·54	4·01	100	..
72,809	6,102	1,466	80,377	478	..	..	..	..	..	..	..	..	53·04	46·96	100	91·13	7·04	1·83	100·60	0·60
9,247	626	1,155	11,028	462	7·16	53·45	20·84	9·37	9·18	70·03	27·70	2·29	50·88	49·12	100	87·52	1·55	10·93	104·37	4·37
1,575	806	358	2,739	6						62·07	23·84	1·61	91·11	8·89	100	57·63	29·27	13·10	100·22	0·22
10,822	1,432	1,513	13,767	468	..	..	..	..	..	..	..	..	59·15	40·85	100	81·37	7·25	11·38	103·52	3·52
10,219	895	1,061	12,175	432	8·17	62·51	12·39	8·46	8·47	69·83	27·29	2·88	53·21	46·79	100	87·02	3·94	9·04	103·68	3·68
1,643	941	688	3,272	29						61·42	23·62	1·98	92·97	7·03	100	50·66	28·12	21·22	100·89	0·89
11,862	1,836	1,749	15,447	461	..	..	..	..	..	..	..	..	61·81	38·19	100	79·15	9·18	11·67	103·08	3·08
97,017	3,286	1,363	101,666	783	0·05	85·80	8·41	0·33	5·41	64·86	31·79	3·35	52·89	47·11	100	96·17	2·48	1·35	100·78	0·78
1,512	916	384	2,812	5						62·50	30·43	3·24	82·40	17·60	100	53·87	32·45	13·68	100·18	0·18
98,529	4,202	1,747	104,478	788	..	..	..	..	..	..	..	..	53·69	46·31	100	95·02	3·29	1·69	100·76	0·76
116,308	2,800	1,195	120,303	678	0·05	85·09	8·45	0·28	6·13	55·18	40·26	4·56	52·41	47·59	100	97·23	1·77	1·00	100·57	0·57
3,003	1,268	321	4,592	14						53·55	39·20	4·48	78·16	21·84	100	65·60	27·39	7·01	100·31	0·31
119,311	4,068	1,516	124,895	692	..	..	..	..	..	..	..	..	53·35	46·65	100	96·06	2·72	1·22	100·56	0·56
66,150	4,432	3,574	74,156	400	0·02	83·69	10·58	0·03	5·68	56·74	41·72	1·54	51·22	48·78	100	89·69	5·47	4·84	100·05	0·05
2,366	866	492	3,724	5						51·11	37·23	1·35	57·54	42·46	100	63·62	23·15	13·23	100·13	0·13
68,516	5,298	4,066	77,880	405	..	..	..	..	..	..	.	..	51·53	48·47	100	88·44	6·31	5·25	100·52	0·52
91,088	4,089	3,967	99,144	315	0·04	83·37	10·58	0·06	5·95	51·59	46·31	2·10	51·17	48·83	100	92·17	3·82	4·01	100·32	0·32
2,776	732	351	3,859	17						47·97	42·20	2·00	60·39	39·61	100	72·25	18 61	9·14	100·44	0·44
93,864	4,821	4,318	103,003	332	..	..	..	..	..	..	..	..	51·52	48·48	100	91·42	4·37	4·21	100·32	0·32
62,762	1,265	2,434	66,461	433	0·24	18·54	74·01	0·04	7·17	58·15	37·63	4·42	54·73	45·27	100	95·06	1·25	3·69	100·66	0·66
35,573	4,946	4,896	45,415	131						55·60	35·52	3·94	51·04	48·96	100	78·56	10·63	10·81	100·29	0·29
98,335	6,211	7,330	111,876	569	..	..	..	..	..	..	..	..	53·23	46·77	100	88·35	5·07	6·58	100·51	0·51
74,876	1,001	2,466	78,343	335	0·14	16·90	74·02	0·01	8·93	55·23	39·84	4·93	55·37	44·63	100	95·99	0·85	3·16	100·42	0·42
44,830	5,149	5,792	55,771	319						53·44	38·01	4·54	54·16	45·84	100	80·85	8·71	10·44	100·58	0·58
119,706	6,150	8,258	134,114	654	..	..	..	..	..	..	..	..	54·87	45·13	100	89·70	4·12	6·18	100·49	0·49
45,562	2,455	826	48,843	557	0·01	88·68	7·40	0·11	3·80	70·78	27·05	2·17	52·47	47·53	100	94·36	3·93	1·71	101·15	1·15
174	57	20	251	1						67·21	25·16	1·99	73·60	26·40	100	69·60	22·40	8·00	100 40	1·40
45,736	2,512	846	49,094	558	..	..	..	..	..	..	..	..	52·58	47·42	100	94·23	4·03	1·74	101·15	1·15
64,329	4,650	3,261	72,240	594	0·02	87·18	7·11	0·07	5·62	42·10	53·70	4·20	53·99	46·01	100	89·79	5·66	4·55	100·83	0·83
52	32	5	89	1						37·80	48·13	3·86	70·45	29·55	100	59·09	35·23	5·68	101·14	1·14
64,381	4,682	3,266	72,329	595	..	..	..	..	..	..	..	..	54·01	45·99	100	89·75	5·70	4·55	100·83	0·83

Districts and Circles.	Years.	Persons Primarily Vaccinated. Caste. Christians.	Hindus.	Muslimans.	Parsis.	Other Castes.	Age. N. = Number. S. = Successful. Under 1 year.	Between 1 and 6 years.	All other ages.	Total number of Persons Operated on. P. = Primary Vaccinations. R. = Re-vaccinations. Sex. Males.	Females	Total.
Cutch	1878-79	..	8,321	2,991	..	..	N. 5,067 S. 4,561	5,915 5,466	330 327	P. 5,804 R. 244	5,508 207	11,312 451
										6,048	5,715	11,763
	1877-78	..	10,719	2,911	..	..	N. 5,535 S. 5,005	8,019 7,513	136 127	P. 6,999 R. 42	6,691 15	13,690 57
										7,041	6,706	13,747
Aden, Bassadore, and Muscat.	1878-79	8	38	824	3	70	N. 232 S. 192	588 443	123 123	P. 606 R. 6	337 1	943 7
										612	338	950
	1877-78	15	8	544	21	65	N. 111 S. 104	351 336	191 127	P. 427 R. 6	226 ..	653 6
										433	226	659
British Army ..	1878-79	281	199	8	2	4	N. 429 S. 400	52 41	13 12	P. 224 R. 246	270 39	494 285
										470	309	779
	1877-78	..	..	..	..	..	N. .... S.	..	..	P. .... R.	..	..
										.. ..	..	..
Native Army ..	1878-79	86	2,026	721	12	163	N. 2,578 S. 2,304	428 414	2 1	P. 1,601 R. 1,735	1,407 213	3,008 1,948
										3,336	1,620	4,956
	1877-78	118	2,903	989	25	168	N. 3,451 S. 3,255	737 650	15 15	P. 2,235 R. 1,197	1,968 225	4,203 1,422
										3,432	2,193	5,625
Total for the Bombay Presidency.	1878-79	3,347	436,951	88,780	1,542	31,349	N. 308,684 S. 292,828	233,664 219,916	19,621 18,477	P. 292,463 R. 40,083	269,506 29,094	561,969 69,177
										332,546	298,600	631,146
	1877-78	3,238	515,750	104,672	1,616	43,466	N. 336,678 S. 317,982	301,646 284,237	30,418 27,058	P. 350,715 R. 48,490	318,027 32,403	668,742 80,893
										399,205	350,430	749,635

per every 1,000 births, and here, where every one knows that, there are more chances for the risk of infantile life than in England on account of early marriages producing weakly infants, and want of tact, presence of mind, discretion, and physician's aid in keeping up the vigour of their constitution, which on account of various changes in the development of the bodily functions often goes wrong, it would not be too much to deduct from the above birth-rate its own quarter, which would leave 30·72 infants per 1,000 of population as available for vaccination. But as the fraction over 30 is more than half and as the subtrahend is a greater, it would be quite safe to set down the rate at 31 to complete the integer. If then out of every 100 only 37·69 children under one year, or a little more than a third, were successfully vaccinated, it is clear that 62·31 or a little less than two-thirds passed that age before vaccinators could reach them or before their parents willingly got them vaccinated.

Causes of nearly two-thirds of surviving infants escape the chance of vaccine operations.

92. It will be seen from the table below that the decrease in the ratio of infants vaccinated is nearly made up by the increase in those above one year in all the districts and circles, except the Presidency Circle. For Baroda the percentage of children under one year available for vaccination is 52·34, and in the Southern Deccan it is only 18·46; for the period between one and six however it is 55·17, so there would seem to be a perjudice against infant vaccination in the South

Infants successfully vaccinated as compared with those available for vaccination by districts and circles at the rate of 31 per *mille* of population.

Results.				Excess of Operations over Persons.	Ratio per 100. Persons Primarily Vaccinated. Caste.					Age.			Total number of Persons Operated on. Sex.			Results.				Excess of Operations over Persons.
Successful.	Unsuccessful.	Unknown.	Total.		Christians.	Hindus.	Musalmans.	Parsis.	Other Castes.	Under 1 year.	Between 1 and 6 years.	All other Ages.	Males.	Females.	Total.	Successful.	Unsuccessful.	Unknown.	Total.	
10,354	471	487	11,312	..	..	73·56	26·44	..	..	44·79	52·29	2·92	51·31	48·69	100	91·53	4·16	4·31	100	..
361	81	9	451	..						40·32	48·32	2·89	54·10	45·90	100	80·04	17·96	2·00	100	..
10,715	552	496	11,763	..	..	..	...	..	..	..	..	..	51·42	48·58	100	91·09	4·69	4·22	100	..
12,645	588	457	13,690	..	..	78·74	21·26	..	..	40·43	58·58	0·99	51·12	48·88	100	92·37	4·30	3·33	100	..
40	12	5	57	..						36·56	54·88	0·93	73·68	26·32	100	70·18	21·05	8·77	100	..
12,685	600	462	13,747	..	..	..	..	..	..	..	..	..	51·22	48·78	100	92·28	4·36	3·36	100	..
753	124	61	943	..	0·85	4·03	87·38	0·32	7·42	24·60	62·36	13·04	64·26	35·74	100	80·38	13·15	6·47	100	..
6	1	1	8	1						20·36	46·98	13·04	85·71	14·29	100	85·71	..	14·29	114·29	14·29
764	125	62	951	1	..	..	..	...	..	..	..	..	64·42	35·58	100	80·42	13·05	6·53	100·11	0·11
567	26	60	653	..	2·30	1·23	83·30	3·22	9·95	17·00	53·75	29·25	65·39	34·61	100	86·83	3·98	9·19	100	..
5	1	..	6	..						15·93	51·45	19·45	100	..	100	83·33	16·67	..	100	..
572	27	60	659	..	..	..	..	..	..	..	..	..	65·71	34·29	100	86·80	4·10	9·10	100	..
453	55	1	509	15	56·88	40·28	1·62	0·41	0·81	86·84	10·53	2·63	45·34	54·66	100	91·70	8·10	0·20	103·04	3·04
155	130	..	285	..						80·97	8·30	2·43	86·32	13·68	100	54·39	45·61	..	100	..
608	185	1	794	15	..	..	..	..	..	..	..	..	60·33	39·67	100	78·05	21·82	0·13	101·93	1·93
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..						..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2,719	364	3	3,086	78	2·86	67·35	23·97	0·40	5·42	85·70	14·23	0·07	53·22	46·78	100	90·39	9·51	0·10	102·59	2·59
1,023	964	..	1,987	39						76·60	13·76	0·03	89·07	10·93	100	52·52	47·48	..	102·00	2·00
3,742	1,328	3	5,073	117	...	..	..	..	..	..	..	..	67·31	32·69	100	75·50	24·42	0·06	102·36	2·36
3,920	460	13	4,393	190	2·81	69·07	23·53	0·59	4·00	82·11	17·53	0·36	53·18	46·82	100	93·27	6·42	0·31	104·52	4·52
1,104	451	2	1,557	135						77·44	15·47	0·36	84·18	15·82	100	77·64	22·22	0·14	109·49	9·49
5,024	911	15	5,950	325	..	..	..	..	..	..	..	..	61·01	38·99	100	89·32	10·42	0·26	105·78	5·78
5 31,221	19,425	15,159	565,805	3,836	0·60	77·75	15·80	0·27	5·58	54·93	41·58	3·49	52·04	47·96	100	94·53	2·77	2·70	100·68	0·68
49,830	12,865	6,672	69,367	190						52·11	39·13	3·29	57·94	42·06	100	72·03	18·32	9·65	100·28	0·29
581,051	32,290	21,831	635,172	4,026	..	..	..	..	..	..	..	..	52·69	47·31	100	92·06	4·48	3·46	100·47	0·47
629,277	22,202	21,331	672,810	4,068	0·49	77·12	15·65	0·24	6·50	50·35	45·10	4·55	52·44	47·56	100	94·10	2·71	3·19	100·61	0·61
60,847	12,614	7,954	81,415	522						47·55	42·50	4·05	59·94	40·06	100	75·22	14·95	9·83	100·65	0·65
690,124	34,816	29,285	754,225	4,590	..	..	..	..	..	..	..	..	53·25	46·75	100	92·06	4·03	3·91	100·61	0·61

ern Deccan, and more so in the Collectorates of Belgaum and Dhárwár and the Southern Marátha Jáhgírs than in Sátára and Kaládgi and the Kolháp̃ur States:—

Districts and Circles.	Population.	Children Under 1 year available for Vaccination at 31 per 1,000.	Children under 1 Year Vaccinated successfully. Number.	Children under 1 Year Vaccinated successfully. Ratio per 100 on Infants.	Children between 1 and 6 Years Vaccinated successfully. Number.	Children between 1 and 6 Years Vaccinated successfully. Ratio per 100 on total Vaccinated.
1 Native Army ...	22,561	699	2,304	329·61	414	13·76
2 British Army ...	10,050	311	400	128·22	41	8·30
3 Baroda	2,000,225	62,007	32,454	52·34	12,147	25·16
4 Eastern Gujarát ...	3,977,490	123,302	63,056	51·14	30,695	30·43
5 Sind	2,322,765	72,006	36,712	50·98	23,450	35·52
6 Western Gujarát ...	2,815,215	87,272	37,694	43·19	27,459	37·23
7 Northern Deccan ...	4,296,187	133,182	48,650	36·53	38,743	41·25
8 Presidency Circle ...	644,405	19,977	6,558	32·83	2,519	23·84
9 Aden	19,289	598	192	32·11	443	46·98
10 Konkan	2,915,587	90,383	28,454	31·48	30,741	46·47
11 Cutch	487,305	15,106	4,561	30·19	5,466	48·32
12 Southern Deccan ...	5,554,665	172,195	31,793	18·46	47,798	55·17
Total ...	25,067,744	777,038	292,828	37·69	219,916	39·13

93. The details of sexes, like those of castes, are not classified according to ages. The number of males primarily vaccinated was 292,463 and of females 269,506. Those re-vaccinated were respectively 40,083 and 29,094; the total of each sex in the two kinds of opertions being 332,546 males and 298,600 females. When compared with the returns of 1877-78 the percentages show that the disparity of the two sexes was less not only in the total operations but also in the primary vaccinations as well as in re-vaccinations. This shows also an improvement, for more females are being vaccinated now than in former years. The percentages for males and females in primary vaccinations are 52·04 and 47·96 against 52·44 and 47·56 of last year; in re-vaccinations they are 57·94 and 42·06 against 59·94 and 40·06; and in total operations they are 52·69 and 47·31 against 53·25 and 46·75.

Sex.

94. On the eighth day after a vaccination the result is noted as "successful," or "unsuccessful," or where the case is not again brought for observation as "unknown." All secondary operations, after the failure of the first, are similarly noted. For 1878-79 there were 531,221, or 94·53 per cent "successful" primary vaccinations. The unsuccessful numbered 19,425, or 2·77 per cent, and the "unknown," or those which were not again brought for observation, were 15,159, or 2·70 per cent. The percentages for 1877 were respectively 94·10, 2·71, and 3·19.

Results.

In re-vaccinations there is a fall in the success attained, and this indicates that those re-vaccinated were well protected. The percentages of successful, unsuccessful and unknown cases were respectively 72·03, 18·32 and 9·65 against 75·22, 14·95 and 9·83 in the previous year.

The results of the total operations are 581,051, or 92·06 per cent. successful, 32,290, or 4·48 unsuccessful and 21,831, or 3·46 unknown. In the previous year these percentages were 92·06, 4·03 and 3·91. The number of unsuccessful cases include the secondary operations, but in calculating the percentages they have been excluded from the total operations, which form a proportion of 0·47 to 100 against 0·61 in the preceding year.

95. The percentages of success vary in the different districts and circles, and they are shown in the following table, and contrasted with those for the previous year both as regards primary vaccinations and re-vaccinations :—

Percentages of success reviewed by Districts and Circles.

No.	Districts and Circles.	Percentages of success in Primary Vaccinations.		Percentages of success in Re-vaccinations.	
		1878-79.	1877-78.	1878-79.	1877-78.
1	Northern Deccan Registration District ...	96·90	96·35	62·47	65·96
2	Eastern Gujarát Registration District ...	96·25	97·49	52·74	64·39
3	Konkan Registration District	96·13	95·59	56·23	56·84
4	Sind Registration District	95·41	96·38	79·13	82·06
5	Southern Deccan Registration District ...	94·80	92·59	76·74	73·87
6	Baroda Circle	94·18	89·75	69·35	62·19
7	British Army	91·70	...	54·38	...
8	Cutch Circle	91·53	92·37	80·04	70·18
9	Dispensaries	90·75	88·62	64·64	52·20
10	Native Army	90·39	93·27	52·52	77·64
11	Western Gujarát Circle	89·79	92·24	64·50	72·35
12	Presidency Circle	87·52	87·02	57·63	50·66
13	Aden	80·51	86·83	0·00	83·33
	Average for the whole Presidency ...	94·53	94·10	72·03	75·22

It will be seen that there is a rise in the "successful" primary vaccinations for the Northern and Southern Deccan and the Konkan, and in Baroda, the dispensaries, and Presidency Circle. The Northern Deccan occupies the first place. The rise in the Presidency Circle is much below what it should be. It is chiefly due to the "unknown" cases out-numbering the "unsuccessful." In Sind, too, the "unknown" are double the number of "unsuccessful." The percentage there is low.

96. The subjoined statement shows, for the several districts and circles, the number of all ages primarily vaccinated successfully out of every 1,000 persons :—

Rate per mille of population, protected by primary vaccinations by Districts and Circles.

Districts and Circles.	Total Number of Persons primarily Vaccinated successfully.	Population of Registration Districts and Circles according to the Census of 1872.	Number of primary successful Vaccinations per 1,000 of Population.
Native Army	2,719	22,561	120·52
British Army	453	10,050	45·07
Aden	758	19,289	39·30
Sind Registration District	62,762	2,322,765	27·02
Eastern Gujarát Registration District	97,017	3,977,490	24·39
Western Gujarát Circle	66,150	2,815,215	23·50
Baroda	45,562	2,000,225	22·78
Konkan Registration District	63,351	2,915,587	21·73
Cutch	10,354	487,305	21·25
Northern Deccan Registration District ...	90,848	4,296,187	21·15
Southern Deccan Registration District ..	82,000	5,554,665	14·76
Presidency Circle	9,247	644,405	14·35
Total ...	531,221	25,065,744	21·19
In British Territory	348,230	16,246,660	21·43
In Native States	182,991	8,819,084	20·75

Owing to less work having been done this year the rate of protection is only 21·19 per cent ; whilst last year it was 25·16. The rates for British and Native Territory are 21·43 and 20·75 respectively. The fall in the rate is general except in Aden, where it is 39·30.

97. Thus far the progress of vaccination has been reviewed for the Presidency, as a whole, as well as by districts and circles, and now we come to the details by establishments. From the subjoined table it may be observed that it is only in the cantonment establishment that there is an increased amount of work :—

Work performed by Establishments.

Establishment.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total number of Persons Operated on.			
	1878-79.	1877-78.	Increase.	Decrease.	1878-79.	1877-78.	Increase.	Decrease.	1878-79.	1877-78.	Increase.	Decrease.
2 Government Vaccinators ..	4,630	5,472	..	842 15·39	68	70	..	2 2·86	4,698	5,542	..	844 15·23
43 Municipal do. ..	42,211	50,250	..	8,039 16·00	10,687	9,948	739 7·43	..	52,898	60,198	..	7,300 12·13
1 Cantonment do. ..	872	845	27 3·20	..	167	28	139 496·43	..	1,039	873	166 19·02	..
219 Local Fund do. ..	304,420	340,998	..	36,578 10·73	45,710	58,841	..	13,131 22·32	350,130	399,839	..	49,709 12·43
144 Native States do. ..	188,447	246,773	..	58,326 23·64	6,726	7,228	..	502 6·95	195,173	254,001	..	58,828 23·16
137 Dispensaries	17,887	20,201	..	2,314 11·45	3,586	3,356	230 6·85	..	21,473	23,557	..	2,084 8·85
British Army	494	1,313	..	819 62·38	285	..	285	..	779	1,313	..	534 40·67
Native Army	3,008	4,203	..	1,195 28·43	1,948	1,422	526 36·99	..	4,956	5,625	..	669 11·89
Total ..	561,969	670,055	27 0·00	108,113 16·13	69,177	80,893	1,919 2·37	13,635 16·85	631,146	750,948	166 0·02	119,968 15·97

The decrease is most marked amongst British troops and in Native States ; but the greatest is in Dispensaries. The percentages of increase in the primary vaccinations, re-vaccinations, and total operations are respectively 0,2·37 and 0·02; and of decrease 16·13, 16·85 and 15·97, so that for every 100 persons in the preceding year there were this year primarily vaccinated 83·87, re-vaccinated 83·15, and operated on 84·03.

98. The results attained by establishments in primary vaccinations, re-vaccinations, and total operations are detailed below under their different heads for the year 1878-79 and 1877-78 :—

Results in Vaccine Operations by Establishments.

Establishment.	Years.	Results in Primary Operations.					Results in Re-vaccinations.					Results in Total Operations.				
		Successful.	Unsuccessful.	Unknown.	Total.	Excess of operations.	Successful.	Unsuccessful.	Unknown.	Total.	Excess of operations.	Successful.	Unsuccessful.	Unknown.	Total.	Excess of operations.
2 Government Vaccinators ..	1878-79	4,444	103	83	4,630	..	59	8	1	68	..	4,503	111	84	4,698	..
	1877-78	5,311	82	79	5,472	..	58	12	..	70	..	5,369	94	79	5,542	..
43 Municipal Vaccinators ..	1878-79	39,129	1,561	2,140	42,830	619	7,091	2,438	1,198	10,727	40	46,220	3,999	3,338	53,557	659
	1877-78	46,335	1,893	2,574	50,802	552	6,645	2,065	1,274	9,984	36	52,980	3,958	3,848	60,786	588
1 Cantonment Vaccinator ..	1878-79	846	8	23	877	5	115	46	6	167	..	961	54	29	1,044	5
	1877-78	804	24	34	862	17	5	20	3	28	..	809	44	37	890	17
219 Local Fund Vaccinators ..	1878-79	292,640	7,335	6,109	306,084	1,664	35,279	6,169	4,354	45,802	92	327,919	13,504	10,463	351,886	1,756
	1877-78	326,670	7,765	8,451	342,886	1,888	46,944	7,055	5,156	59,155	314	373,614	14,820	13,607	402,041	2,202
144 Native States Vaccinators ..	1878-79	174,757	8,888	6,123	189,768	1,321	3,790	2,346	599	6,735	9	178,547	11,234	6,722	196,503	1,330
	1877-78	228,333	10,447	9,155	247,935	1,162	4,339	2,371	531	7,241	13	232,672	12,819	9,686	255,176	1,175
137 Dispensaries ..	1878-79	16,233	1,111	677	18,021	134	2,318	764	514	3,596	10	18,551	1,875	1,191	21,617	144
	1877-78	17,904	1,531	1,025	20,460	259	1,752	640	988	3,380	24	19,656	2,171	2,013	23,840	283
British Army ..	1878-79	453	55	1	509	15	155	130	..	285	..	608	185	1	794	15
	1877-78	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Native Army ..	1878-79	2,719	364	3	3,086	78	1,023	964	..	1,987	39	3,742	1,328	3	5,073	117
	1877-78	3,920	460	13	4,393	190	1,104	451	2	1,557	135	5,024	911	15	5,950	325
Total for the Bombay Presidency..	1878-79	531,221	19,425	15,159	565,805	3,836	49,830	12,865	6,672	69,367	190	581,051	32,290	21,831	635,172	4,026
	1877-78	629 277	22,202	21,331	672,810	4,068	60,847	12,614	7,954	81,415	522	690,124	34,816	29,285	754,225	4,590

The results for British troops are now classified for the first time; formerly the number of successful cases only were returned by them.

99. The above figures merely show the numbers successfully vaccinated or otherwise; but the next table gives the percentage of success achieved by each kind of establishment, contrasted with that of the preceding year. In primary vaccinations the percentages are lower than in the previous year for Government vaccinators and the Native Army :—

Percentages of success reviewed by Establishments.

Establishments.		Government.	Municipal.	Cantonment.	Local Funds.	Native States.	Dispensaries.	British Army.	Native Army.	For the whole Presidency.
In Primary Vaccinations.										
Percentage of success.	1878-79 ...	95·98	92·70	97·02	96·13	92·74	90·75	91·70	90·39	94·53
	1877-78 ...	97·06	92·21	95·14	95·79	92·52	88·62	...	93·27	94·10
In Re-vaccinations.										
Percentage of success.	1878-79 ...	86·76	66·35	68·86	77·18	56·35	64·64	54·39	52·52	72·03
	1877-78 ...	82·85	66·79	17·86	79·78	60·03	52·20	...	77·64	75·22

The fall in the Native Army was due to there having been fewer persons vaccinated, and in the case of the Government vaccinators it was owing to there having been more "unknown" cases. The highest percentage attained is 97·02 by the Cantonment vaccinator and the lowest is 90·39 in Native Army.

Work of Establishments by Districts and Circles.

100. In the following remarks the work of the different establishments is specified by districts and circles.

Work of Government Vaccinators.

101. There are only 5 Government vaccinators, and of these 5 those for the Rájkot and Deesa Cantonment are paid from "Civil" or "Provincil Funds"; whilst those for the Military stations of Mhow, Neemuch and Nusseerabad are paid from "Military Funds." The latter work under the station Staff Surgeon, and the former under the Superintendent of Vaccination, Western Gujarát Circle. The Cantonment Committee of Deesa bear half the cost of vaccination carried on there, and the other half is borne by Government. The work of the three vaccinators is chiefly amongst the Native Army camp followers. The Rájkot and Deesa vaccinators have a working area of 269 square miles and a population of 95,926 souls. They primarily vaccinated 4,630, and re-vaccinated 68

persons, of whom there were respectively 4,444 and 59 successful, giving percentages of 95·98 and 86·76. The ratio per mille of population protected was 46·94. There were 103 cases unsuccessful and 83 unknown in primary vaccinations, and in re-vaccinations they were respectively 8 and 1. Each successful case cost 1 anna and 9 pies, or 2 pies more than in the previous year.

Work of Cantonment Vaccinators.

102. The Committee of the Cantonments of Poona and Kirkee entertain one vaccinator, who works amongst a population of 28,450, and over an area of 4 square miles. He is under the supervision of the Deputy Sanitary Commissioner, Northern Deccan Registration District. He returned 872 persons under primary vaccinations and 167 under re-vaccinations. Those successfully vaccinated were 846 and those re-vaccinated were 115. The respective percentages of success were 97·02 and 68·86. The unsuccessful and unknown cases under primary vaccinations were 8 (of whom 5 were vaccinated afresh) and 23. In re-vaccinations there were 46 unsuccessful and 6 unknown. The cost of each successful case was annas 5 and pies 4. The ratio per 1,000 of successful vaccinations was 33·78. There is thus an improvement in these cantonments in all particulars.

Work of Municipal Vaccinators.

103. There are 43 municipal vaccinators, as there were last year. They work among a population of 1,639,737 souls in an area of 178 square miles. Their primary vaccinations and re-vaccinations were respectively 42,211 and 10,687.

Districts and Circles.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total number of Persons Operated on.			
	1878-79.	1877-78.	Increase.	Decrease.	1878-79	1877-78	Increase.	Decrease.	1878-79,	1877-78.	Increase.	Decrease.
Northern Deccan Registration District..	8,737	9,442	...	705	333	291	42	...	9,070	9,733	...	663
Southern Deccan Registration District.	5,355	10,129	...	4,774	320	369	...	49	5,675	10,498	...	4,823
Konkan Registration District	1,793	1,791	2	...	688	683	5	...	2,481	2,474	7	...
Presidency Circle ...	10,556	11,743	...	1,177	2,733	3,243	...	510	13,299	14,986	...	1,687
Eastern Gujarát Registration District.	9,685	10,812	...	1,127	559	1,074	...	515	10,244	11,886	...	1,642
Sind Registration District	5,249	5,680	...	431	6,053	4,282	1,771	...	11,302	9,962	1,340	...
Aden	826	653	173	...	1	6	...	5	827	659	168	...
Total ...	42,211	50,250	175	8,214	10,687	9,948	1,818	1,079	52,898	60,198	1,515	8,815

This gives a decrease of 8,039 in the former and an increase of 739 in the latter. The decrease is in all the districts and circles except the Konkan and Aden. The unsuccessful and the unknown numbered 1,561 and 2,140 in primary vaccinations and 2,438 and 1,198 in re-vaccinations. There were 619 primarily vaccinated and 40 re-vaccinated more than once. There were 39,129 persons successfully vaccinated and 7,091 re-vaccinated giving, the percentages of 92·70 and 66·35. Protection was afforded to 28·19 per mille of population. Each vaccinator, on an average, operated on 1,230 persons. The cost of each successful case was annas 6 and pie 1, or 1 anna more than in the preceding year. In those towns where there are no special vaccinators the medical officers in charge of the dispensaries situated therein keep up vaccination; but as they have other duties they cannot devote to the work as much time as is requisite. In last year's report (page 198) it was suggested that such towns as have a population of 10,000 should have special vaccinators.

Requisition of special vaccinators for towns having 10,000 population.

Work of Local Fund Vaccinators.

104. There are now 219 vaccinators paid from Local Funds, and 20 of them have more than 1 rural circle, so at least 20 more are required. The rural circles for which special vaccinators were recommended were named at page 198 of last year's report. The Local Fund vaccinators have, on the whole, a population of 14,556,733 souls and an area of 124,232 square miles.

Each rural circle, at least, should have one Vaccinator.

Districts.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total Number of Persons Operated on.			
	1878-79.	1877-78.	Increase	Decrease.	1878-79.	1877-78.	Increase.	Decrease.	1878-79.	1877-78,	Increase.	Decrease.
Northern Deccan Registration District...	78,323	74,710	3,613	...	609	850	...	241	78,932	75,560	3,372	...
Southern Deccan Registration District...	55,332	70,274	...	14,942	781	1,008	...	227	56,113	71,282	...	15,169
Konkan Registration District	55,201	60,547	...	5,346	5,118	4,408	710	...	60,319	64,955	...	4,636
Eastern Gujarát Registration District...	59,546	69,783	...	10,237	1,709	3,092	...	1,383	61,255	72,875	...	11,620
Sind Registration District...	56,018	65,684	...	9,666	37,493	49,483	...	11,990	93,511	1,15,167	...	21,656
Total ...	304,420	340,998	3,613	40,191	45,710	58,841	710	13,841	350,130	399,839	3,372	53,081

There were 304,420 persons primarily vaccinated and 45,710 re-vaccinated. Compared with last year's work there is a net decrease of 36,578 in primary vaccinations and 13,131 in re-vaccinations. There was an increase of work in the Northern Deccan only. Success was attained in 292,640 persons primarily vaccinated and in 35,279 re-vaccinated. The percentages of success were 96·13 and 77·18 respectively. The numbers of unsuccessful cases were 7,335 and 6,169 respectively for each of the two kinds of operation; of these 1,664 and 92 were the number of operations in excess of persons. The unknown cases were respectively 6,109 and 4,354. The rate per mille of population successfully operated on was 22·53. Each vaccinator, on an average, operated on 1,599 persons. The cost of each successful case was annas 3 and pies 3, or 5 pies more than the cost in 1877-78.

Work of Native State Vaccinators.

105. This year there are 144 vaccinators working in Native States, which have an area of 70,915·64 square miles, and a population of 8,712,237 souls. There is an increase of 1 vaccinator only over the number for 1877-78. This vaccinator has been employed in the Yellur Táluka of the Kurundvád State. The States of Sávantvádi, Sángli Táluka, Gad Hinglaj, Panála and Kolhápur Petha require an additional vaccinator.

States that require additional Vaccinators.

Districts and Circles.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total number of Persons Operated on.			
	1878-79.	1877-78.	Increase.	Decrease.	1878-79.	1877-78.	Increase.	Decrease.	1878-79.	1877-78.	Increase.	Decrease.
Norther Deccan Registration District.	2,866	3,283	...	417	2	18	...	16	2,868	3,301	...	433
Southern Deccan Registration District.	23,564	25,434	...	1,870	180	482	...	302	23,744	25,916	...	2,172
Konkan Registration District	6,578	6,754	...	176	2,154	2,712	...	558	8,732	9,466	...	734
Eastern Gujarát Registration District.	26,842	33,835	...	6,993	142	164	...	22	26,984	33,999	...	7,015
Western Gujarát Circle	68,050	91,623	...	23,573	3,484	3,576	..	92	71,534	95,199	...	23,665
Sind Registration District	2,797	3,775	...	978	65	137	...	72	2,862	3,912	...	1,050
Baroda	46,438	68,379	...	21,941	248	82	166	...	46,686	68,461	...	21,775
Cutch	11,312	13,690	...	2,378	451	57	394	...	11,763	13,747	...	1,984
	188,447	246,773	...	58,326	6,726	7,228	560	1,062	195,173	254,001	...	58,828

There were 188,447 persons primarily vaccinated and 6,726 persons re-vaccinated, or taking the two kinds of operations together there were 58,828 operations less than in the preceding year. This decrease is in all the districts and circles. Those successfully vaccinated were 174,757, or 92·74 per cent, and those re-vaccinated were 3,790, or 56·35 per 100, or in other words 20·49 per 1,000 of population were vaccinated and re-vaccinated with success. There were 8,888 unsuccessful (of which 1,321 were vaccinated a second time) and 6,123 unknown cases in primary vaccinations. In re-vaccinations, out of 2,346 unsuccessful cases, 9 were secondary operations, and 599 cases did not come under observation. Each vaccinator, on an average, vaccinated 1,355 persons, and the cost per each successful case was annas 4 and pies 3, or 1 anna more than in the previous year.

106. Vaccine operations were this year carried on by the medical officers of 137 dispensaries or 5 more than in the preceding year. They have primarily vaccinated 17,887 and re-vaccinated 3,586 persons. There is a net decrease of 2,084 when compared with 1877-78.

Work of Dispensary Officers.

Districts and Circles.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total number of Persons Operated on.			
	1878-79.	1877-78.	Increase	Decrease.	1878-79.	1877-78.	Increase	Decrease.	1878-79.	1877-78.	Increase	Decrease.
Northern Deccan Registration District	3,117	2,390	727	..	39	92	..	53	3,156	2,482	674	..
Southern Deccan Registration District	2,385	2,217	168	..	434	789	..	355	2,819	3,006	..	187
Konkan Registration District	2,575	2,529	46	..	868	475	393	..	3,443	3,004	439	..
Eastern Gujarát Registration District	4,810	5,195	..	385	397	248	149	..	5,207	5,443	..	236
Western Gujarát Circle	1,076	1,734	..	658	167	196	..	29	1,243	1,930	..	687
Sind Registration District	1,959	2,869	..	910	1,673	1,550	123	..	3,632	4,419	..	787
Baroda	1,848	3,267	..	1,419	2	6	..	4	1,850	3,273	..	1,423
Bassadore and Muscat	117	..	117	..	6	..	6	..	123	..	123	..
Total	17,887	20,201	1,058	3,372	3,586	3,356	671	441	21,473	23,557	1,236	3,320

In primary vaccinations the decrease occurred in Eastern and Western Gujarát, in Sind and Baroda, and in re-vaccinations in the Northern and Southern Deccan and also in the Western Gujarát and Baroda. Out of the total decrease of 2,084, Baroda shares 1,423 or more than two-thirds; for Sind, too, it is 787. There were 16,233 persons vaccinated and 2,318 re-vaccinated with success, the percentages being 90·75 and 64·64. The "unsuccessful" and "unknown" cases in each of the two kinds of operations were respectively 1,111 and 677 and 764 and 514. There were 134 persons in the former and 10 in the latter sort of operations who were vaccinated more than once.

107. The details of vaccination for British troops (being available for the first time this year) have been given in the subjoined statement. There were 494 persons vaccinated and 453 cases were successful, a percentage of 91·70. There were 285 re-vaccinated and of these 155, or 54·39 per cent were successful. The number of unsuccessful cases in primary vaccinations were 55; out of which 15 were secondary operations. In re-vaccinations there were 130 unsuccessful. Only 1 case of primary vaccination escaped observation.

Work performed in the British Army.

	Primary Vaccinations.																
	1		2					3			4					5	6
	Sex.		Caste.					Age.			Result.						
											Successful.			Unsuccessful and doubtful.	Unknown.	Total.	Excess of Operations over Persons.
British Army. Strength .. {1878..10,050. 1877..10,061.	Males.	Females.	Christains.	Hindus.	Musalmans.	Parsis.	Other Castes.	Under 1 year.	Between 1 and 6 years.	Above 6 years.	Under 1 year.	Above 1 and under 6 years.	Total of all Ages.				
Regiments .. {1878-79 .. 1877-78 ..	128 ..	137 ..	265 ..	.. ..	.. ..	.. ..	.. ..	205 ..	47 ..	13 ..	187 ..	36 ..	235 ..	40 ..	.. ..	275 ..	10 ..
Camp Followers. {1878-79 .. 1877-78 ..	96 ..	133 ..	16 ..	199 ..	8 ..	2 ..	4 ..	224 ..	5 ..	.. ..	213 ..	5 ..	218 ..	15 ..	1 ..	234 ..	5 ..
Total. {1878-79 .. 1877-78 ..	224 ..	270 ..	281 ..	199 ..	8 ..	2 ..	4 ..	429 ..	52 ..	13 ..	400 ..	41 ..	453 ..	55 ..	1 ..	509 ..	15 ..
Native Army. Strength..22,561.																	
Regiments .. {1878-79 .. 1877-78 ..	656 1,002	572 916	41 69	874 1,390	270 412	1 2	42 45	1,016 1,479	210 430	2 9	930 1,430	202 375	1,133 1,814	137 188	2 6	1,272 2,008	44 90
Camp Followers. {1878-79 .. 1877-78 ..	945 1,233	835 1,052	45 49	1,152 1,513	451 577	11 23	121 123	1,562 1,972	218 307	.. 6	1,374 1,825	212 275	1,586 2,106	227 272	1 7	1,814 2,385	34 100
Total. {1878-79 .. 1877-78 ..	1,601 2,235	1,407 1,968	86 118	2,026 2,903	721 989	12 25	163 168	2,578 3,451	428 737	2 15	2,304 3,255	414 650	2,719 3,920	364 460	3 13	3,086 4,393	78 190

	Re-vaccinations.							Percentages of Successful Cases.	
	7		8			9	10	11	
	Sex.		Result.						
British Army. Strength ..{1878..10,050 1877..10,061	Males.	Females.	Successful.	Unsuccessful and doubtful.	Unknown.	Total.	Excess of Operations over Persons.	In Primary Vaccinations.	In Re-vaccinations.
Regiments ..{1878-79 .. 1877-78 ..	238 ..	34 ..	147 ..	125 ..	.... ..	272 ..	.... ..	88·66 ..	54·04 ..
Camp Followers {1878-79 .. 1877-78 ..	8 ..	5 ..	8 ..	5 ..	.... ..	13 ..	.... ..	95·20 ..	61·54 ..
Total. {1878-79 .. 1877-78 ..	246 ..	39 ..	155 ..	130 ..	.... ..	285 ..	.... ..	91·70 ..	54·39 ..
Native Army. Strength..22,561									
Regiments ..{1878-79 .. 1877-78 ..	1,717 1,024	201 196	1,010 915	947 432	 2	1,957 1,349	39 129	92·26 94·57	52·66 75·00
Camp Followers {1878-79 .. 1877-78 ..	18 173	12 29	13 189	17 19	....	30 208	 6	80·91 92·16	43·33 93·56
Total. {1878-79 .. 1877-78 ..	1,735 1,197	213 225	1,023 1,104	964 451	 2	1,987 1,557	39 135	90·39 93·27	52·52 77·64

Work performed in the Native Army.

108. ' In the Cantonments of Mhow, Neemuch and Nusseerabad there are special vaccinators. Including their work there were primarily vaccinated 3,008 and re-vaccinated 1,948 persons in the Native Army. Compared with the numbers for 1877-78 there is a decrease of 1,195 in primary vaccinations, but there is an increase of 526 in re-vaccinations. On the whole there is a decrease of 669. In primary vaccinations there were 2,719 successful, 364 unsuccessful, and 3 unknown cases; of the unsuccessful cases 78 were vaccinated afresh. In re-vaccinations there were 1,023 successful and 964 unsuccessful cases; of which 39 were again vaccinated. The percentages of success have fallen in both kinds of operations, being 90·39 and 52·52 against 93·27 and 77·64 in 1877-78. The fall in the former was owing to there being fewer operations, and in the latter it was due to their being more than double the number of unsuccessful cases noted last year.

Average number of operations per each kind of establishment.

109. The average number of persons vaccinated and re-vaccinated by each kind of establishment, as contrasted with 1877-78, is noted below :—

	1878-79.	1877-78.
1*st.*— 2 Government Vaccinators	2,349	2,771
2*nd.*—'43 Municipal do.	1,230	1,400
3*rd.*— 1 Cantonment do.	1,039	873
4*th.*—219 Local Fund do.	1,599	1,826
5*th.*—144 Native States do.	1,355	1,776
6*th.*—For the whole Presidency	1,477	1,766

Average number of operations per vaccinator by districts and circles.

110. It will be seen from the subjoined table that when arranged by districts and circles, these averages show that Sind, Western and Eastern Gujarát hold the 1st, 2nd and 4th places, as they did last year; the Presidency Circle, the Konkan, Northern Deccan, and Aden have respectively risen from the 5th, 6th, 8th and 10th places to the 3rd, 5th, 7th and 9th; but Baroda, the Southern Deccan and Cutch have fallen, and now have the 6th, 8th and 10th places, instead of the 3rd, 7th and 9th. The only districts and circles that are below the average for the whole

Presidency are the Northern and Southern Deccan, Aden, and Cutch :—

No.	Districts and Circles.	Average number of Persons Vaccinated by each Vaccinator		Names of Deputy Sanitary Commissioners and Superintendents.
		1878-79.	1877-78.	
1	Sind Registration District ...	2,111	2,581	Drs. N. Hopins, C. W. MacRury, O. H. Channer and J. Parker.
2	Western Gujarát Circle ...	1,773	2,343	Drs. J. T. Welsh and R. Batty.
3	Presidency Circle	1,662	1,873	Dr. Ananta Chandroba.
4	Eastern Gujarát Registration District	1,614	1,915	Dr. M. B. Colah.
5	Konkan Registration District...	1,590	1,709	Drs. C. W. MacRury, W. Barren, J. Parker, and T. Cody.
6	Baroda	1,506	2,208	Drs. T. Cody and Bhalchandra Krishna.
7	Northern Deccan Registration District	1,294	1,278	Drs. W. Nolan, L. R. Bruce, O. H. Channer and T. Cody.
8	Southern Deccan Registration District	1,031	1,298	Drs. G. Bainbirdge and J. P. Greany.
9	Aden	827	659	Drs. Patterson and Macgregor.
10	Cutch	784	916	Dr. Dorabji Hormusji.

English lymph.

111. Two separate lots of English lymph of 45 tubes each were received during the year, and the results are here given for those districts and circles to which it was distributed :—

Supplies received in	No. on the Packet.	Districts and Circles.	Number of Tubes tested.	Number of Children operated on	Number of Insertions.	Number of Resulting Vesicles.	Character of Vesicles.	Remarks.
November 1878.	442	Northern Deccan Registration District	7	5	19	9	Vesicles, small, lymph good ...	Twelve children were operated on with the lymph from these vesicles. Three tubes broken in post
	454	Southern Deccan Registration District	6	6	24	12	Good	Failed in three children.
	453	Konkan Registration District	5	5	28	13	Small and good ...	There were air bubbles in almost all the tubes.
	453	Eastern Gujarát Registration District	5	5	20	12	Middling and good.	Two vesicles were bad.
	453	Western Gujarát Circle ...	5	4	24	9	Small but well formed	Result in one case not ascertained.
	453	Sind Registration District ...	6	2	12	3	Good	
	442	Baroda	3	3	17	3	Small but characteristic	
	442	Cutch	3	3	12	8	Very good ...	
	442	Aden	5	5	14	11	Excellent ...	Failure in one child.
		Total ...	45	38	170	80		
December 1878.	46	Northern Deccan Registration District	6	6	24	17	Seven were small, lymph good ...	Fifteen children were operated on with the lymph from these vesicles.
	46	Southern Deccan Registration District	4	4	23	3	Good	
	462	Konkan Registration District.	5	5	30	23	Good; sixvery small	The vesicles rather abortive.
	40	Presidency Circle	4	4	20	Nil.	... ...	Complete failure.
	40	Eastern Gujarát Registration District	5	5	24	2	Good	One child was entire failure.
	40	Western Gujarát Circle ...	5	5	30	2	Very small and indifferent	
	508	Sind Registration District ...	6	6	48	23	Good	
	508	Baroda	3	3	18	3	Good	
	508	Cutch	4	4	16	14	Very good... ...	
	508	Aden	3	Result not known.				
		Total ...	45	42	233	87		
		Grand Total ...	90	80	403	167		

It may be observed that in the first supply out of the 18 tubes three were broken in transit in the Northern Deccan Registration District. The lymph was

said to be good, and though the resulting vesicles were small, they were characteristic. In Aden 1 tube entirely failed. The 5 tubes supplied to the Konkan Registration District contained air bubbles and there were 6 other tubes failed. One tube is used for one operation.

As regards the second supply 6 tubes were sent to the Northern Deccan, where they produced excellent results, and 4 were sent to the Southern Deccan, where out of 23 insertions made in the arms of 4 children only 3 good vesicles were obtained. Another packet contained 14 tubes, but almost all of them failed; in fact there were only 2 good vesicles.

Quality of the lymph in use.

112. Except in Eastern and Western Gujarát, Aden and the Kánara Collectorate the lymph in use was reported to be of good quality. The deterioration in Kánara was owing to the prevalence of sickness among vaccinators who could not keep it up. In Eastern Gujarát the lymph deteriorated and was totally lost owing to the heavy and incessant rains and also on account of the unhealthy season. In Western Gujarát the cause of deterioration was the prevalence of distress and sickness all over the province. Lymph failed in Aden in the months of August, September, and October, and this has now happened for 3 successive years. It has, consequently, been decided to obtain quarterly supplies. In all places where lymph failed, steps were taken to re-establish it departmentally.

Lymph supplied.

113. Supplies of lymph were, on requisition being made for them, sent to the Aden Sanitarium, Staff Surgeon Bhúj, Kampti Cantonment Hospital, Civil Surgeon Aden, Staff Surgeon Mhow, Medical Officer "Queens" Mhow, Bassadore Dispensary, Residency Surgeon Indore, and Chinchni Dispensary in Thána Zilla.

Animal vaccination.

114. Animal vaccination was this year kept up in two places only, Poona and Bombay. In Surat, where it continued for two years, it was given up as the supply of heifers obtained previously from the Dheds and Mahomedans was in time exhausted. The Hindus, who have them, refuse to lend them.

In Poona 71 heifers were bought for Rs. 220-4-0, and maintained at a cost of Rs. 80-10-10. The pay of their attendants was Rs. 85-2-3. After their use they were sold for Rs. 92-15-0. Thus the total expenditure amounted to Rs. 293-2-1. Out of these 71 heifers there was a failure in 5 only.

In Bombay 404 calves were operated on, and 7 proved unsuccessful; of these 7, 3 or 4 were said to have been affected with foot and mouth disease. The cow-lymph received from Dr. Warlomont, of Brussels, proved successful in two heifers. The following statement shows the number of heifers used in each month, and the result of the operations :—

Months.	April 1878.	May.	June.	July.	August.	September.	October.	November.	December.	January 1879.	February.	March.	Total.
Heifers, inoculated	30	30	30	30	31	30	42	37	31	36	37	40	404
Operations, successful in ...	30	30	30	29	31	30	41	35	30	36	37	38	397
Do. failed in	...	...	...	1	...	...	1	2	1	...	...	2	7

Compared with 1877-78 the cost of heifers, this year, was less by Rs. 340-1-5. Considering that 80 additional heifers were used this year, the decrease in expenditure shows a praiseworthy tact on the part of the Superintendent of Vaccination. The actual cost was Rs. 2,252-12-7. Vaccination in Bombay was performed with animal lymph only; in all other places it was carried on from arm to arm, except in the Broach and Surat Districts and the City of Poona, where both animal and human lymph were in use. In Surat town, animal lymph, after a few remo ves, resulted in inflammation and the early formation of deep aræolœ on the arms, so

it was discontinued. During the current year vaccination has been made compulsory by law in the town of Kurrachee, where animal lymph will have to be kept up.

115. The total expenditure on account of vaccination, subjoined, is both for 1878-79 and 1877-78 :—

Expenditure.

Establishment.	Total Expenditure.		Compared with the preceding year.	
	1878-79.	1877-78.	Increase.	Decrease.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Provincial	1,01,945 15 0	1,04,948 12 8	.....	3,002 13 8
Municipal	17,639 0 1	17,087 8 11	551 7 2	.....
Cantonment	319 8 0	337 14 5	.....	18 6 5
Local Funds	66,522 3 0	66,171 11 8	350 7 4	.....
Native States...	47,278 2 10	47,823 0 5	.....	544 13 7
	2,33,704 12 11	2,36,369 0 1	901 14 6	3,566 1 8
			Deduct Increase Rs ...	901 14 6
			Net Decrease Rs. ...	2,664 3 2

Increase and decrease of Expenditure.

There is an increase under "Municipal" and "Local Funds," and it was for the most part incidental, as, on the whole, there was no increase in the strength of the Department. It is the same with regard to the decrease of expenditure under the "Provincial," "Cantonment," and "Native States Funds."

Cost of each successful case after deducting the pay of the supervising officers by districts and circles.

116. The cost of each successful case after deducting the pay of the Deputy Sanitary Commissioners and Superintendents of Vaccination is shown in the following table, and is contrasted with that for 1877-78 :—

Names of Districts and Circles.		Deputy Sanitary Commissioners and Superintendents.	Successfully Vaccinated and Re-vaccinated.	Total cost excluding the pay of Deputy Sanitary Commissioners and Superintendents.	Average cost of each successful Vaccination.	Number of Vaccinators.
				Rs. a. p.	A. p.	
Northern Deccan Registration District.	1878-79 ...	Drs. W. Nolan, L. R. Bruce, O. H. Channer and T. Cody	88,673	33,033 15 5	6 0	71
	1877-78 ...		85,838	32,175 0 10	5 11	70
Southern Deccan Registration District.	1878-79 ...	Drs. G. Bainbridge and J. P. Greany.	80,857	33,355 3 7	6 7	83
	1877-78 ...		99,382	35,512 9 1	5 8	83
Konkan Registration District	1878-79 ...	Drs. C.W. MacRury, W. Barren, J. Parker and T. Cody	65,585	22,331 3 6	5 5	45
	1877-78 ...		70,481	21,008 12 7	4 9	45
Presidency Circle	1878-79 ...	Dr. Ananta Chandroba...	10,822	8,643 5 6	12 9	9
	1877-78 ...		11,862	8,340 2 2	11 2	9
Eastern Gujarát Registration District.	1878-79 ...	Dr. M. B. Colah	93,740	26,648 13 7	4 7	61
	1877-78 ...		1,14,346	26,617 13 2	3 8	62
Western Gujarát Circle	1878-79 ...	Drs. J. T. Welsh and R. Batty ...	67,548	20,510 12 4	4 10	43
	1877-78 ...		92,204	21,450 14 0	3 9	43
Sind Registration District	1878-79 ...	Drs. N. Hopkins, C.W. MacRury, O. H. Channer and J. Parker	95,636	28,387 15 11	4 9	51
	1877-78 ...		1,16,652	28,251 0 9	3 10	50
Baroda	1878-79 ...	Drs. T.Cody and Balchandra Krishna.	43,909	11,558 14 4	4 3	31
	1877-78 ...		61,422	11,342 1 3	2 9	31
Cutch...	1878-79 ...	Dr. Dorabji Hormusji	10,715	6,354 8 7	9 6	15
	1877-78 ...		12,685	5,747 2 2	7 3	15
Aden	1878-79 ...	Drs. Patterson and Macgregor ...	665	360 0 0	8 8	1
	1877-78 ...		572	216 0 0	6 1	1
		Total ... 1878-79 ...	5,58,150	1,91,184 12 9	5 6	410
		Total ... 1877-78 ...	6,55,444	1,90,621 8 0	4 7	409

The cost of each successful case was annas 5 and pies 6, or 11 pies more than last year. It was also higher in all the districts and circles. The highest cost per each successful case was in Aden, owing chiefly to the increased expenditure, and in Cutch also, where it rose from Annas 7-3 to Annas 9-6. In Aden it was Annas 8-8 instead of Annas 6-1. There were fewer operations this year, and hence the average cost per each successful case rose from Annas 4-7 to Annas 5-6. The total expenditure in the preceding table exhibits a net decrease of Rs. 2,664-3-2, whereas, after deducting therefrom the pay of the Deputy

Sanitary Commissioners and Superintendents of Vaccination, there is an increase of Rs. 563-4-9 on the whole. The decrease was in the pay of the supervising officers on account of there having been many changes among them, as noticed in the beginning of this section. The Southern Deccan shows a decrease of Rs. 2,157-5-6.

Cost of each successful case, including all charges.

117. Including all charges the average cost per each successful case was Annas 6-8, or 1 anna more than in 1877-78.

Cost of each successful case by each kind of establishment.

118. The cost of each successful case by different kinds of establishment is that here given :—

	1878-79.	1877-78.
Government ...	As. 1-9	As. 1-7
Municipal ...	„ 6-1	„ 5-1
Cantonment ...	„ 5-4	„ 4-2
Local Fund ...	„ 3-3	„ 2-10
Native States ...	„ 4-3	„ 3-3

There was thus an increase in all establishments, attributable to the out-turn of work being less.

Work of the Supervising Officers, &c.

119. Having reviewed the work of the vaccinators, the following paragraphs relate to that of the Supervising Officers, &c.

Name of Districts and Circles.	Name of Deputy Sanitary Commissioners and Superintendents.		Number of Encampments.	Number of Travelling days.	Distance Travelled in miles.	Number of Villages visited.	Number of Vaccinated Children inspected.
Northern Deccan Registration District ..	1878-79 ..	Drs. W. Nolan, L. R. Bruce, O. H.	62	104	2,636	166	7,108
	1877-78 ..	Channer, and T. Cody	66	168	5,331	117	7,111
Southern do. do. ..	1878-79 ..	Drs. G. Bainbridge and J. P. Greany ..	72	80	1,105	63	7,380
	1877-78 ..		78	111	1,495	87	5,274
Konkan do. ..	1878-79 ..	Drs. C. W. MacRury, W. Barren, J. Par-	45	111	1,282	352	16,795
	1877-78 ..	ker, and T. Cody..	45	140	2,164	302	7,764
Eastern Gujarát do. ..	1878-79 ..	Dr. M. B. Colah	53	155	1,629	411	8,430
	1877-78 ..		64	176	1,959	334	11,624
Western do. do. ..	1878-79 ..	Drs. J. T. Welsh and R. Batty	55	108	1,133	201	6,677
	1877-78 ..		55	107	1,121	250	11,967
Sind do. ..	1878-79 ..	Drs. N. Hopkins, C. W. MacRury, O. H.	39	63	1,191	243	9,134
	1877-78 ..	Channer, and J. Parker	78	93	2,410	179	3,103
	Total .. 1878-79 ..		326	621	8,976	1,436	55,524
	Total .. 1877-78 ..		386	795	14,480	1,269	46,843

120. Except in Eastern and Western Gujarát the number of children inspected was more than in 1877-78. They were more than double in the Konkan and Sind. In the Southern Deccan more children were seen in fewer villages, and in Eastern Gujarát fewer children were seen in more villages; while in Western Gujarát, both for children and villages, the numbers were less.

Work of Deputy Sanitary Commissioners and Superintendents of Vaccination.

Districts and Circles.	Work tested by calling names from Registers.											
	Number of Vaccinated Children inspected.	Present during Inspection.				Absent during Inspection.		Number of Persons whom the Vaccinator has returned as Vaccinated.				
		Successful.			Unsuccessful.	Absence accounted for.	Absence Unaccounted for.	Successful.	Unsuccessful and doubtful.	Unknown.	Total.	Excess of Operations over Persons.
		Good.	Middling.	Bad.								
Northern Deccan Registration District	1878-79... 4,674	4,049	256	35	334	3,523	...	7,846	238	146	8,230	28
	1877-78... 5,986	5,420	269	...	297	9,715	...	15,133	303	265	15,701	...
Southern Deccan Registration District	1878-79... 1,389	1,299	37	2	51	2,160	...	3,377	87	91	3,555	6
	1877-78... 2,594	1,939	251	...	404	5,478	15	7,533	143	411	8,087	...
Konkan Registration District.	1878-79... 14,605	11,239	1,566	999	751	9,131	...	23,261	431	63	23,755	19
	1877-78... 6,154	4,443	832	...	874	2,880	...	8,580	337	117	9,034	...
Eastern Gujarát Registration District	1878-79... 8,360	3,744	3,629	636	351	2,932	...	10,653	526	207	11,386	94
	1877-78... 11,519	3,835	6,499	...	1,185	3,938	...	14,682	520	255	15,457	...
Western Gujarát Circle ...	1878-79... 2,926	2,141	447	241	97	2,587	1	4,869	330	315	5,514	...
	1877-78... 4,288	3,396	562	...	330	1,969	3	5,871	248	141	6,260	...
Sind Registration District ...	1878-79... 3,497	2,004	982	441	70	1,752	...	5,060	90	112	5,262	13
	1877-78... 2,726	755	1,165	...	806	2,039	3	4,341	185	242	4,768	...
Total .. 1878-79 ...	35,451	24,526	6,917	2,354	1,654	22,090	1	55,066	1,702	934	57,702	160
Total .. 1877-78 ...	33,267	19,793	9,578	...	3,896	26,019	21	56,140	1,736	1,431	59,307	...

Inspections from Vaccination Registers by Deputy Sanitary Commissioners and Superintendents of Vaccination.

121. This table gives full details of the number of children whose names were called out from the vaccination registers. It may be remarked that the vaccination registers or such portions of them as were used to test the number of children presented for inspection showed 57,702 operations performed on 57,542 children; out of which there were entered 55,066 as successful and 934 as unknown. The unsuccessful, including the 160 secondary operations, numbered 1,702. So out of the 57,542 children, whose names were called out, there were present 35,451, and absent 22,090. The number of successful, among those present, was 33,797 and the unsuccessful were 1,654. These give percentages of 95·33 and 4.67 respectively, which correspond very closely with those returned by vaccinators (95·70 and 4·30, inclusive of the 1·62 per cent unknown). Out of 94·66 per cent returned last year as successful by the vaccinators only 88·28 per cent were found to be such. No doubt this was due to the large number of children "absent" at the time, (26,019) but there were 22,092 absent this year. To show the character of the cicatrices the "successful" are further distinguished as "good," "middling," and "bad," and thus the degree of protection is also shown. Deducting the number of children called from the vaccination registers, from the total inspections, as given in the preceding table, there remain 20,073 children inspected; but not tested by the registers. The greatest number of children seen by the register test were in the Konkan and Eastern Gujarát and the least in the Southern Deccan and Sind.

Truthfulness of Vaccination Registers.

Classification of successful cases.

Inspections without Vaccination Registers.

122. Since the charges of almost all the districts and circles, except Eastern Gujarát and Presidency Circle, have changed hands on several occasions, it is impossible to remark on the individual duties of the supervising officers.

Remarks on the work of the Supervising Officers.

123. There were 30 Inspectors of Sanitation and Vaccination and 4 Assistant Superintendents of Vaccination; of these 29 were maintained by Government, and 5 by Native States. Out of the 281,168 children, whose names were called from the Registers, 196,985 were present, 84,073 were absent, and 110 could not be accounted for. These 110 must be wayfarers, without fixed homes, as "Dombaris," &c.

Work of Inspectors of Sanitation and Vaccination and Assistant Superintendents of Vaccination and their conduct.

Districts and Circles.		Number of Encampments.	Number of Travelling Days.	Distance Travelled in Miles.	Number of Villages visited.	Work tested by calling names from Registers.											
						Number of Vaccinated Children Inspected.	Present during Inspection.				Absent during Inspection.		Number of Persons whom the Vaccinator has returned as Vaccinated.				
							Successful.										
							Character of Vesicles and Cicatrices.										
							Good.	Middling	Bad.	Unsuccessful.	Absence accounted for.	Absence unaccounted for.	Successful.	Unsuccessful and Doubtful.	Unknown.	Total.	Excess of Operation over Persons.
Northern Deccan Registration District.	1878-79.	1,183	1,700	14,528	2,391	46,714	39,839	2,972	1,160	2,803	24,981	...	69,336	1,226	1,133	71,695	..
	1877-78.	856	1,664	17,387	2,199	45,072	39,390	2,186	755	2,741	22,317	5	64,811	1,408	1,175	67,394	..
Southern Deccan Registration District.	1878-79.	1,075	1,568	13,262½	3,005	53,910	44,427	5,552	1,546	2,385	24,803	19	74,824	1,634	2,457	78,915	183
	1877-78.	952	1,451	11,115	2,419	53,030	42,773	6,493	1,802	1,962	28,847	96	77,958	1,413	2,602	81,973	..
Konkan Registration District.. ..	1878-79.	669	1,045	8,550	1,199	24,543	17,545	3,717	1,529	1,752	4,947	35	27,979	1,228	393	29,600	75
	1877-78.	785	1,144	9,300	1,296	30,719	22,660	4,366	1,844	1,849	5,213	27	34,705	1,001	253	35,959	...
Eastern Gujárat Registration District ..	1878-79.	299	1,126	11,483	1,961	32,550	12,676	13,492	4,960	1,422	9,193	1	39,818	1,507	703	42,028	284
	1877-78.	445	1,113	10,852	2,084	40,795	18,211	14,737	6,488	1,359	8,160	22	47,179	1,127	671	48,977	..
Western Gujarát Circle ..	1878-79.	261	540	3,755	539	11,974	7,750	2,486	1,236	502	5,642	7	15,721	1,104	807	17,632	9
	1877-78.	219	479	3,645	568	14,233	10,107	2,590	1,170	366	5,197	3	17,921	923	589	19,433	..
Sind Registration District.	1878-79.	842	1,063	12,864	1,926	27,294	6,989	10,328	7,389	2,608	14,507	43	36,907	2,528	2,519	41,954	105
	1877-78.	979	1,255	15,640	2,385	36,089	7,635	14,400	11,121	2,933	17,302	1	47,968	2,450	2,974	53,392	..
Baroda ..	1878-79.	931	1,055	7,875	1,465	27,555	..	..	..	..	..	..	..	...	..	..	..
	1877-78.	1,035	1,064	8,386	1,583	35,232	..	..	..	..	..	..	..	..	..	..	..
Cutch	1878-79.	109	187	1,090	264	7,588	..	..	...	..	..	..	..	..	...	..	...
	1877-78.	152	243	1,547	323	9,302	..	..	..	..	...	..	..	..	...	..	..
Total ..	1878-79.	5,369	8,284	73,407½	12,750	196,985 / 35,143	129,206	38,547	17,760	11,472	84,073	110	264,585	9,227	8,012	281,824	656
	1877-78.	5,423	8,413	77,872	12,857	219,938 / 44,534	140,776	44,772	23,180	11,210	87,036	154	290,542	8,322	8,264	307,128	...

On inspecting 196,985 children, 185,513 were found to be successfully vaccinated and 11,472 were unsuccessful, so out of every 100 children inspected there were 94·18 successful and 5·82 unsuccessful. These inspections were continued throughout all seasons of the year and were not merely accidental like those of the Deputy Sanitary Commissioners and Superintendents, and the results noted by the vaccinators tallied with those given by the Inspectors—this is satisfactory. As the particulars of the number of children inspected by the Baroda and Cutch Inspectors are not known, they are excluded from general calculation, though they are separately given in the above table. Except in the Northern and Southern Deccan, the rate of travelling was slower, and the number of villages seen were also less than in the preceding year. This is, no doubt, owing to the excessive rain-fall which impeded travelling. The conduct of all these inspecting officers had, on the whole, been reported to be good and satisfactory.

Total Inspections.

124. Taking the work of the Deputy Sanitary Commissioners, Superintendents, Inspectors and Assistant Superintendents collectively, they encamped at 5,695 places, travelled over 82,383½ miles and inspected 287,652 children in 14,186 villages. The number of travelling days was 8,905. The total inspections were 45·58 on the total number of persons operated on. They were 35·53 last year.

Conduct of Vaccinators.

125. Ten vaccinators were dismissed the service, 3 in the Southern Deccan—1 for falsification of returns, 1 for inefficiency, and 1 for having brought himself under the penalty of the law; 2 in the Konkan for falsification of the returns; 2 in Eastern Gujarát for negligence and inefficiency; 1 in Western Gujarát for neglect of work; and 2 in Cutch for inattention. Four vaccinators, in the Southern Deccan, died. Four vaccinators resigned—1 in the Northern Deccan, 2 in the Southern Deccan and 1 in the Konkan. Five vaccinators retired incapacitated for further service—2 in the Southern Deccan, 1 in Eastern Gujarát, 1 in Sind, and 1 in Cutch. Twenty-one vaccinators were transferred—1 in the Northern Deccan, 14 in the Southern Deccan, 2 in the Konkan, and 4 in Eastern Gujarát. Eight vaccinators were promoted—2 in the Northern Deccan, 2 in the Southern, 1 in the Konkan, 1 in Eastern Gujarát, and 2 in Sind. There was only 1 new appointment in the Yellur Táluka of the Kurundvád State, Southern Deccan Registration District. The conduct of the vaccinators, with a few exceptions, was reported to be good.

Clerks.

126. All the clerks have carried on their duties to the entire satisfaction of their superiors.

Inoculation.

127. Not a single instance of inoculation was observed by any officer.

Ill-effects by Vaccination.

128. No other disease was reported to have been communicated through vaccination.

Aid from Civil, Revenue, and Political Officers.

129. All the Deputy Sanitary Commissioners and Superintendents of Vaccination acknowledge the aid they have received from the Civil, Revenue, and Political Officers.

Small-pox by Collectorates and Registration Districts.

130. Small-pox was prevalent through every district of the Bombay Presidency; but the deaths were only 2,515. The following table shows them by Collectorates and for each Registration District:—

Districts and Circles.	Deaths from Small-pox during 1878-79.	Number of Persons Operated on.
Northern Deccan Registration District.		
Khándesh Collectorate ...	246	29,641
Násik do. ...	38	15,444
Ahmednagar do. ...	19	17,212
Poona do. ...	41	17,773
Sholápur do. ...	4	12,093
Total ...	348	92,163
Southern Deccan Registration District.		
Sátára Collectorate ...	33	25,251
Belgaum do. ...	37	14,016
Dhárwár do. ...	37	13,177
Kaládgi do. ...	15	10,824
Total ...	122	63,268
Konkan Registration District.		
Kánara Collectorate ...	23	9,867
Ratnágiri do. ...	64	27,557
Kolába do. ...	70	8,178
Thána do. ...	46	20,413
Total ...	203	66,015
Presidency Circle, Bombay.	387	13,299
Eastern Gujarát Registration District.		
Surat Collectorate ...	43	15,412
Broach do. ...	50	7,658
Kaira do. ...	433	22,040
Panch Maháls ...	164	7,153
Ahmedabad Collectorate .	344	23,769
Total ...	1,034	76,032
Sind Registration District.		
Kurrachee Collectorate ...	5	26,357
Hyderabad do. ...	105	26,147
Thar and Párkar ...	12	11,604
Shikárpur Collectorate ...	278	38,582
Upper Sind Frontier ...	21	5,725
Total ...	421	108,415
Grand Total ...	2,515	419,192

In Western Gujarát cases of small-pox were reported by vaccinators to have occurred in 49 villages in Kattywar and in 13 villages in the Pálanpur States. In Baroda it prevailed to some extent in April through the States of Petlád, Shisva, Dhaboi, Shinor, Jharod and Bijápur.

Small-pox occurring after Vaccination.

131. Only one instance of small-pox occurring after vaccination was noticed in Bombay city by the Superintendent of Vaccination, and it was of a very mild type.

Suggestions for the more effectual spread of vaccination.

132. The Deputy Sanitary Commissioner, Sind Registration District, again suggests, the introduction of vaccination into the territories of H. H. the Khán of Khelat, where small-pox is hardly ever absent, and is a constant source of danger. It was from this territory that small-pox was imported into Upper Sind. The Compulsory Vaccination Bill has passed into law for the town of Kurrachee, and it is hoped that the benefits of the measure may be fully realised. The Civil Surgeon is authorized to carry out the law, and a Superintendent of Vaccination will work under his order. The Superintendent will also have one or more Assistants.

Kurrachee Vaccination Act, No. IV, of 1879, how to be worked up.

Progress in the Northern Deccan Registration District.

133. The Northern Deccan Registration District has the Collectorates of Khándesh, Násik, Ahmednagár, Poona and Sholápur, and the Native States of the Khándesh Agency, Peint, Akalkot and Modnimb. It extends over 38,960 square miles, having a population of 4,296,187. There were 7 Inspectors of Sanitation

and Vaccination, 2 Clerks, 9 Municipal, 1 Cantonment, 59 Local Funds and 2 Native States Vaccinators, and 80 Peons employed. The medical officers of 25 dispensaries had kept up vaccination in the towns. Each vaccinator had, on an average, 60,509 of the population, and an area of 549 square miles. Six additional vaccinators are required for five towns and one rural circle. Primary vaccinations numbered 90,798, or 2,518 more than last year, and re-vaccinations numbered 1,111, or only 76 less than last year. There is much room for the extension of vaccination in this district. The dispensary officers primarily vaccinated 3,117 and re-vaccinated 39 persons. Last year these numbers were respectivly 2,390 and 92. The total number of primary successful cases returned by vaccinators was 87,979, or 96·90 per cent., and of re-vaccination 694 or 62·47 per cent. The rate of protection afforded from both kinds of operations was 20·64 per mille of population. The cost of each successful case was annas 7, or 1 pie less than in the preceding year, calculated on the total expenditure of Rs. 38,787-6-4. The average number of persons operated on by each vaccinator was 1,294. The number of deaths from small-pox was 348 against 4,629 in 1877-78.

Khándesh Collectorate.

134. The Collectorate of Khándesh has a population of 1,028,642, and an area of 10,162 square miles. There were 19 vaccinators, who primarily vaccinated 28,393 and re-vaccinated 58 persons; out of these there were respectively 27,693 and 56 successful, or 97·53 and 96·55 per cent. Protection was afforded to 26·98 per 1,000 of population. The average work of each vaccinator amounted to 1,497 cases. Small-pox deaths numbered 246 against 1,749 last year. The cost of each successful case was Annas 3-1.

Násik Collectorate.

135. The Nasik Collectorate extends over 7,156 square miles, and has a population of 687,353. It had 12 vaccinators. One more is required for Yeola town. Primary vaccinations were 14,452; of which 13,611, or 94·11 per cent. were successful. Re-vaccinations were 165; of which 89 or 53·94 per cent. were successful. The rate of protection per 1,000 of population was 19·93. There is an improvement in this district over the results for last year, but there is still room for improvement. The cost of each successful case was Annas 4-3. The deaths from small-pox were 38 only against 1,081 last year.

Ahmednagar Collectorate.

136. The Ahmednagar Collectorate has 773,938 persons in an area of 6,647 square miles. There were 12 vaccinators employed in it, and 1 is required for the town of Sangamner. Out of 16,763 primary vaccinations and 173 re-vaccinations, 16,497 in the former and 77 in the latter proved successful, the percentages of success being 98·41 and 44·50, or 21·43 per mille of population were successfully operated on. The average number of operations per each vaccinator was 1,411 and the average cost of each successful case Annas 3-6. There were 19 deaths from small-pox.

Poona Collectorate.

137. There are 5,099 square miles in the Poona Collectorate, which has a population of 907,235. There were 14 vaccinators, the same as last year, and 2 more are required, one for the town of Junnar and an additional one for the Khed Táluka. There were 16,594 persons primarily vaccinated and 350 re-vaccinated; of these 15,942 and 191, or 96·07 and 54·57 per 100 were successful. This gives the rate per mille of population protected as 17·78. Each vaccinator averaged 1,210, and the cost per each successful case was Annas 4-2. There were 41 deaths from small-pox.

Sholápur Collectorate.

138. There were 12 vaccinators working in the Sholápur Collectorate in an area of 4,509 square miles, and a population of 718,034. They returned 11,730 persons as having been primarily vaccinated and 363 re-vaccinated. The successful cases were respectively 11,477 and 279, and the percentages of success were 97·84 and 76·86 or only 16·37 persons were protected out of every 1,000. Each vaccinator averaged 1,008 persons. The cost of each successful case was Annas 4-10. Small-pox carried off only 4 persons.

Native States in the Northern Deccan Registration District.

139. The four Native States, viz, the Dang territory which has no vaccinator, Peint State, Akalkot and Modnimb, which belong to the Miraj State and is situated in the Madha táluka, have a collective area of 5,387 square miles and 180,985 persons. The total operations were 2,868; of which only 2 were re-vaccinations, and these 2 were also successful. Of the primary vaccinations 2,759, or 96·26 per cent. were successful. There were 15·26 persons out of every 1,000 protected. Each vaccinator operated on 1,434 persons.

Progress in the Southern Deccan Registration District.

140. In the Southern Deccan Registration District there are the Collectorates of Sátára, Belgaum, Dhárwár and Kaládgi, the Kolhapur States, the Sátára and the Southern Maratha Jahagírs and the Savanúr State under the Dhárwár Agency. The collective population numbers 5,554,665, and the area is 28,110 square miles. There were 5 Inspectors of Sanitation and Vaccination, 1 Assistant Superintendent of Vaccination, 2 Clerks, 9 Municipal, 43 Local Funds, and 31 Native States Vaccinators and 93 Peons. Vaccination was carried on by the Medical Officers of 14 dispensaries. The average population and area per each vaccinator were respectively 66,924 and 339. Sixteen more vaccinators are wanted for five towns, seven rural circles and four Native States. It is to be regretted that the Bijapur and Guledgudd Municipalities have dispensed with the services of their vaccinators for want of funds. The primary vaccinations were 84,251, or 21,586 below those for the preceding year. The re-vaccinations were 1,281, and they also were less by 568. There were 79,874, or 94·80 per cent. successful primary vaccinations and 983 or 76·74 re-vaccinations, the rate of protection per mille of population being 14·56 against 17·89 for last year. The average work for each vaccinator was 1,031. The dispensary work amounted to 2,385 persons primarily vaccinated; of these 2,126, or 89·14 per cent. were successful and 434 were re-vaccinated; of whom 331, or 76·27 per cent. were successful. Each successful case cost Annas 7-7, or 9 pies more than last year; while the total cost was Rs. 38,460-2-2, being less by Rs. 3,816-11-5. The average work for each vaccinator was 1,031. There were 122 deaths from small-pox against 3,562 in 1877-78.

Sátára Collectorate.

141. The Collectorate of Sátára has a population of 10,61,002, and an area of 4,804 square miles. There were 14 vaccinators at work, and an additional one is required for each of the towns of Karad and Wai. There were 23,805 primary and 343 re-vaccinations; of these 23,319, or 97·96 and 317, or 92·42 were successful. The rate of protection per mille of population was 21·93. The average work for each vaccinator was 1,725. Each successful case cost Annas 3-2. The deaths from small-pox were 33; whilst last year there were 2,246.

Belgaum Collectorate.

142. The Belgaum Collectorate has a population of 938,750, in an area of 4,592 square miles. The work of twelve vaccinators amounted to 13,473 primary vaccinations and 166 re-vaccinations; of these 12,928 and 144 were successful, the percentages of success being 95·95 and 86·75, or 13·92 per mille of population. Each vaccinator averaged 1,137 persons. Two more vaccinators are required, one for each of the towns of Gokák and Athni. Each successful case cost Annas 4-2. Small-pox carried off 37 persons, or 828 less than in the preceding year.

Dhárwár Collectorate.

143. The Collectorate of Dhárwár has an area of 4,565 square miles, and a population of 988,037. There were in all 14 vaccinators and four more are required, one for each of the three pethas and one for the town of Ranebennur. There were 12,920 persons primarily vaccinated and 257 re-vaccinated. The successful cases in each were 11,904, or 92·14 and 120, or 46·69 per cent. Out of every 1,000 persons only 12·16 were successfully vaccinated. The average number of vaccinations performed by each vaccinator was 941. The diminished number of small-pox deaths which were 37 instead of 1,581 in the previous year is the one satisfactory point. The cost of each successful case was Annas 5-6.

Kaládgi Collectorate.

144. There were 12 vaccinators employed in the Kaládgi Collectorate, which has a population of 816,037, and an area of 5,695 square miles. The vaccinatorships in the towns of Bijápur and Guladgudd were unfortunately abolished. Four additional vaccinators are wanted, one each for the tálukas of Bágalkot, Hungund, Bádámi and Indi. There were 10,489 primary vaccinations, of which 9,702, or 92·50 per cent. were successful, and 335 re-vaccinations, of which 253, or 75·52 per 100 were successful. The rate per mille of population protected was 12·20, and the average work per each vaccinator was 902. The successful primary vaccinations returned for children under one year of age out-number the registered births, *minus* the deaths among them. There were 15 deaths from small-pox against 529 last year. Each successful case cost Annas 5-2.

Native States in the Southern Deccan Registration District.

145. The Native States had 31 vaccinators working in an area of 8,363·98 square miles, and a population of 1,750,839. Four additional vaccinators are required for Gad Hinglaj, Panála and Kolhápur Petha in the Kolhápur States and for Sángli Táluka in the Sángli States. The Kolhápur States have one Assistant Superintendent of Vaccination. In 23,564 primary vaccinations and 180 re-vaccinations 22,021, or 93·45 and 149 or 82·78 per cent. were succeesful. The protection per 1,000 of population was 12·66. Each vaccinator averaged 766. The work in the Sátára Jághirs exceeded that of the preceding year.

Progress in the Konkan Registration District.

146. The Konkan Registration District has the Collectorates of Kánara, Ratnágiri, Kolába, and Thána, the Native States of Sávantvádi, Janjira and Jawhar, a population of 2,915,587, and an area of 15,888·16 square miles. It maintained in all 4 Inspectors, 2 Clerks, 2 Municipal, 40 Local Funds and 3 Native States Vaccinators and 56 Peons. Eight more vaccinators are required, five in town two in rural circles and one in a Native State. Work was performed in 26 dispensaries. The average population and area for each vaccinator were respectively 64,791 and 353. The work of dispensary officers was 2,575 primary and 868 re-vaccinations; of these 2,242, or 87·07 and 567, or 65·32 per cent. were successful. The vaccinators returned 63,572 primary and 7,960 re-vaccinations; of these 61,109, or 96·13 and 4,476, or 56·23 per 100 were successful. There were 22·49 persons per 1,000 successfully operated on. The cost of each successful case was Annas 6-7, or 5 pies more than last year. There were 203 deaths from small-pox; while in 1877-78 there were 2,271. The total expenditure in this district amounted to Rs. 27,126-3-6.

Kánara Collectorate.

147. The Kánara Collectorate occupies 4,235 square miles and entertains 11 vaccinators to work in a population of 398,406. An addition of two for the towns of Kárwár and Cumpta would strengthen the establishment. The primary vaccinations were 8,529 and the re-vaccinations 399. The number of successsul cases were respectively 7,820 and 258, the percentages being 91·69 and 64·66. The rate of protection per mille of population was 21·59. Each vaccinator averaged 813. Each successful case cost Annas 6-4. There were 23 deaths from small-pox. In this Collectorate very little trouble seems to have been taken in vaccinating infants under one year of age.

Ratnágiri Collectorate.

148. There were 13 vaccinators working in the collectorate of Ratnágiri, which has a population of 1,019,136, in an area of 4,512 square miles. The towns of Ratnágiri and Vengurla each require a special vaccinator. Among 22,887 persons primarily vaccinated and 4,535 re-vaccinated the successful cases were 22,324 and 3,167. The percentages are 97·54 and 69·83, or 25·01 per 1,000 of persons. The average work for each vaccinator was 2,109, and the cost per each successful case was Annas 2-5. The small-pox deaths were 64 against 695 last year.

Kolába Collectorate.

149. The Kolába Collectorate has a population of 3,50,405, in an area of 1,504 square miles. There are five vaccinators employed in it and two more are wanted, one for the táluka of Mahad and one for the Nagotna Petha. The primary vaccinations were 7,815

and the re-vaccinations 152; of these 7,518, or 96·20 and 63, or 41·45 were successful. There were 21·63 per mille of population protected. The deaths from small-pox were 70 against 217 last year. The average of each vaccinator was 1,593, and the cost of each successful case was Annas 3-2.

Thána Collectorate.

150. There are 847,424 persons living in the Thána Collectorate, which has an area of 4,052 square miles. There were 13 vaccinators employed and two more have been entertained during the current year. Another is yet required for the town of Kalyán. There were 17,763 primary vaccinations and 720 re-vaccinations, and of these 17,163 and 250 were successful. The percentages were 96·62 and 34·72. Protection was afforded to 20·55 per thousand of the population. Each vaccinator averaged 1,422. The cost for each successful case was Annas 3-6. The deaths from small-pox were 46 against 907 in 1877-78.

Native States in the Konkan Registration District.

151. The States of Sávantvádi, Janjira and Jawhar have a collective area of 1585·16 square miles, and a population of 300,216. There were three vaccinators and another is required in the Sávantvádi State. The primary vaccinations and re-vaccinations were respectively 6,578 and 2,154 and the successful cases were 6,284, or 95·53 and 738, or 34·26 per cent. The protected were 23·39 per 1,000. The average for each vaccinator was 2,911. Less work was done in the Sávantvádi State.

Progress in the Presidency Circle.

152. The city of Bombay is the Presidency circle. It has an area of 22 square miles, and a population of 644,405. There is 1 Assistant Superintendent of Vaccination, 2 Clerks, 1 Head Vaccinator, 6 public vaccinators, 2 Assistants and 3 peons, and the cost is defrayed by the Municipality. The experience of the past two years tends to show that the establishment is still underhanded to work the Bombay Vaccination Act satisfactorily. There were 10,566 primary vaccinations and 2,733 re-vaccinations; and of these 9,247 and 1,575 were successful. The percentages of success were 87·52 and 57·63. The protected were 16·79 per 1,000 of population. The total expenditure was Rs. 12,843-5-6, and the cost for each successful case averaged Rs. 1-3-0, or 1 anna and 1 pie more than in the preceding year. There were 387 deaths from small-pox, and in the preceding year there were 688.

Progress in the Eastern Gujarát Registration District.

153. The Eastern Gujarát Registration District comprises the Collectorates of Surat, Broach, Kaira, Panch Maháls and Ahmedabad, and the Native States of Mahi Kántha, Rewa Kántha, Cambay, the Surat Agency and Jámbughoda. The total area is 19,743·50 square miles, and the population is 3,977,490. The establishment consisted of 5 Inspectors of Sanitation and Vaccination, 2 Clerks, 8 Municipal, 34 Local Funds, and 19 Native States Vaccinators, and 68 Peons. Work was performed in 25 Dispensaries. The average work per each vaccinator was 65,205 operations, and the area was 324 square miles. Some 14 more vaccinators are required, 8 for town circles, 1 for a rural circle, and 5 for five of the more populous tálukas. In dispensaries the primary vaccinations and re-vaccinations were 4,810 and 397, and of these 4,548, or 94·55 and 241 or 60·71 per cent were successful. The itinerant establishment vaccinated 96,073 and re-vaccinated 2,410 persons, and attained success in 92,469 primary vaccinations and 1,271 re-vaccinations, the percentages being 96·25 and 52·74. The protected were 23·56 per mille of population. The total cost was Rs. 30,110-12-4, and the average cost per successful case was Annas 5-8, or 1 anna more than in the previous year. The average work for each vaccinator was 1,614. There were 1,034 deaths from small-pox against 3,345 in 1877-78.

Surat Collectorate.

154. There were 9 vaccinators in the Surat Collectorate, the area of which is 1,630 square miles, and the population 607,087. The town of Bulsár requires a special vaccinator. The primary vaccinations were 14,011 and the re-vaccinations were 312, and 13,632 and 105 cases were respectively successful. The percentages of success were 97·29 and 33·65 and the protected were 22·63 per 1,000 of population. Each vaccinator

averaged 1,591, and the cost per each successful case was Annas 3-3. There were 43 deaths from small-pox against 559 in the preceding year.

Broach Collectorate.

155. The area of the Broach Collectorate is 1,363 square miles, and there is a population of 350,322. There are 6 vaccinators and 2 more are wanted—1 for the town of Jambusar and 1 for the Hánsot Petha. The primary vaccinations were 6,874 and the re-vaccinations were 194; the successful cases were 6,553, or 95·33 per cent, and 63, or 32·47 per cent. There were 18·86 per 1,000 of population protected. Each vaccinator averaged 1,178, and the average cost per each successful case was Annas 3-8. The small-pox deaths were 50 against 729 in 1877-78.

Kaira Collectorate.

156. The Kaira Collectorate has an area of 1,561 square miles, and its population is 782,733. There were 9 vaccinators employed and 5 more are required, 1 in each of the towns of Kaira Borsad and Kapadvanj and 1 each for the tálukas of Nadiád and Borsad. Out of 19,946 primary vaccinations and 246 re-vaccinations 18,962, or 95·07 and 93 or 37·80 per cent were successful. The protected were 24·34 per 1,000 of population. Each vaccinator on an average vaccinated 2,244 persons. The cost of each successful case was Annas 2-5. The deaths from small-pox were 433; while those in 1877-78 were 753.

Panch Mahál.

157. The area of the Panch Mahál is 1,644 square miles, and the population is 240,743. There are 5 vaccinators and 2 others are required for the towns of Godhra and Dohad. Out of 6,048 primary vaccinations and 464 re-vaccinations 5,903 and 313 were successful. The percentages of success were 97·60 and 67·45 and 25·82 per mille of population were successfully operated on. The average work per each vaccinator was 1,302. The small-pox deaths were 164, or 87 more than in the preceding year. The cost of each successful case was annas 4.

Ahmedabad Collectorate.

158. The Collectorate of Ahmedabad has a population of 829,637, and an area of 3,844 square miles. There were 13 vaccinators and the primary vaccinations and re-vaccinations were respectively 21,951 and 1,051; of these 20,956, or 95·47 and 602 or 57·28 per cent were successful. Protection was afforded to 25·98 per mille of population. Each vaccinator averaged 1,769. The cost of each successful case was Annas 2-9. Small-pox carried off 344 persons against 927 in the preceding year. Four more vaccinators are required, 1 for the town of Gogha and 1 for each of the more populous tálukas of Daskroi, Viramgám, and Parántij.

Native States in the Eastern Gujarát Registration District.

159. The collective area of the Native States in the Eastern Gujarát Registration District is 9,493·50 square miles, and the population is 1,143,028. The táluka vaccinators of Chorási in Surat, and Hálol in the Panch Mahál, work in the Sachin and Jámbughoda States. There were in all 19 vaccinators, and they vaccinated 26,842 persons and re-vaccinated 142; of these 26,076, or 97·14, and 95, or 66·90 per cent were successful. Protection was afforded to 22·89 per mille of population. Each vaccinator, on an average, operated on 1,420 persons.

Progress in the Western Gujarát circle.

160. The Native States of Káthiáwár and Pálanpur form the Western Gujarát Circle which has an area of 26,380 square miles, and a population of 2,815,215. There were 2 Assistant Superintendents of Vaccination, 2 Clerks, 2 Government and 41 Native States Vaccinators and 49 Peons employed in this circle. The average number of square miles for each vaccinator was 613, and the average population of his area 65,470. Vaccination was performed in 10 Dispensaries. The primary vaccinations and re-vaccinations were respectively 72,680 and 3,552. The successful cases were 65,257 and 2,291, their percentages being 89·79 and 64·50. The rate of protection was 23·99 per 1,000 of population. Each vaccinator averaged 1,773 persons. The average cost of each successful case was Annas 7-2 and the total expenditure was Rs. 30,110-12-4. In Dispensaries there were primarily vaccinated 1,076 and re-vaccinated 167 persons, of whom 893 and 75, or 82·99 and 44·91 per cent were successful. As compared with last year there is a decrease in the work, and it is chiefly due to the prevalence of great distress throughout the Province.

Province of Káthiáwár.

161. There were 36 vaccinators in the States of Káthiáwár which have a collective area of 20,339 square miles, and a population of 2,312,629. Out of 58,392 primary vaccinations and 2,571 re-vaccinations there were 52,140 and 1,572 successful cases. The percentages being 89·29 and 61·14. Protection was afforded to 23·23 per 1,000 of population. The average work per each vaccinator was 1,693, and the cost per each successful case Annas 3-10.

Pálanpur States.

162. The States of Pálanpur have an area of 6,041 square miles and a population of 502,586 and there were 7 vaccinators. There were 14,288, primary vaccinations and 981 re-vaccinations, and the successful cases were 13,117, or 91·80 and 719, or 73·29 per cent. Protection was afforded to 27·53 per 1,000 of population. The average work per each vaccinator was 2,181 operations.

Progress in the Sind Registration District.

163. The Sind Registration District has a population of 2,322,765, and an area of 49,307 square miles. There were 6 Inspectors of Sanitation and Vaccination, 2 Clerks, 6 Municipal, 43 Local Funds and 2 Native States Vaccinators, and 49 peons. Vaccination was also performed in 22 Dispensaries. Sixteen more vaccinators are required, 4 for Kurrachee, 1 for Hyderabad, 1 for Thar and Párkar and 5 for the Shikárpur Collectorate. Vaccination in the town of Kurrachee will now be carried on under the provisions of Bombay Act No. IV. of 1879. Each vaccinator has an average population of 45,544 and an area of 967 square miles. There were 64,064 primary vaccinations and 43,611 re-vaccinations, and the successful cases were respectively 61,125 and 34,511. The rates of success were 95·41 and 79·13 per cent, and that of protection was 41·17 per 1,000 of population. The total cost was Rs. 34,854-10-7 and for each successful case it was Annas 5-10, or 1 anna and 1 pie more than last year. There were 1,959 primary vaccinations and 1,673 re-vaccinations in Dispensaries; of these 1,637, or 83·56 and 1,062, or 63·42 per cent were successful. There were 421 deaths from small-pox. As in Eastern Gujarát and Baroda so in Sind more than half the number of children under 1 year, available for vaccination, have been successfully vaccinated, but there is still room for improvement.

Kurrachee Collectorate.

164. The area of the Kurrachee Collectorate is 14,092 square miles, and its population is 423,495. There were 12 vaccinators, and 4 more are wanted so as to have one for each rural circle. There were 11,414 primary vaccinations and 14,404 re-vaccinations and the successful cases were respectively 10,974, or 96·15 and 11,808, or 81·93 per cent; whilst 5,371 per 1,000 of population were protected. Each vaccinator averaged 2,151. The cost of each successful case was Annas 2-6. There were only 5 deaths from small-pox.

Hyderabad Collectorate.

165. The Collectorate of Hyderabad has an area of 9,052 square miles, and a population of 721,947. There were 13 vaccinators and 1 more is required for one of the rural circles. The primary vaccinations and re-vaccinations were respectively 17,534 and 8,006; and the successful cases were 16,842 and 5,918. The percentages of success were 96·05 and 73·92, and the rate of protection was 31·48 per 1,000 of population. Each vaccinator, on an average, operated on 1,965 persons, and the cost per each successful case was Annas 2-9. There were 105 deaths from small-pox.

Thar and Párkar.

166. The area of the Thar and Parkár District is 12,729 square miles, and the population is 180,761. There were 6 vaccinators, and 1 more is required. The primary vaccinations and re-vaccinations were respectively 6,491 and 4,808; of these 6,019, or 92·73 and 3,678, or 76·50 per cent were successful. The protected were 53·65 per 1,000 of population. Each vaccinator, on an average, vaccinated 1,883 persons, and the cost of each successful case was Annas 2-8. There were 12 deaths from small-pox.

Shiákrpur Collectorate.

167. The Shikárpur Collectorate has a population of 776,227, in an area of 8,813 square miles. There were 15 vaccinators. The primary vaccinations and re-vaccinations were respectively 21,886 and 14,545, and the successful cases were 20,917 and 11,735. The percentages of success were 95·57 and 80·68, and 42·06 per 1,000 of population

were protected. Each vaccinator averaged 2,429, and the cost of each successful case was Annas 2-8. There were 278 deaths from small-pox. Five additional ones are required, and one of them might be employed in the town of Lárkhána.

Upper Sind Frontier.

168. The Upper Sind Frontier has a population of 89,985, and an area of 1,913 square miles. It had 3 vaccinators. Out of 3,942 primary vaccinations and 1,783 re-vaccinations there were 3,660 and 1,331 successful. The rates of success were respectively 92·85 per cent and 74·15; whilst that of protection was 55·46 per 1,000. The average work per each vaccinator was 1,908, and the cost of each successful case was Annas 3-1. There were 21 deaths from small-pox.

Khairpur State.

169. The Khairpur State has an area of 2,708 square miles, and a population of 130,350. It maintains 2 vaccinators. The primary vaccinations and re-vaccinations were 2,797 and 65 respectively, and the successful cases were 2,713 and 41. The percentages of success were 97·00 and 63·08; and the rate of protection was 21·13 per 1,000 of population. On an average 1,431 persons were operated on by each vaccinator.

Progress in the Baroda Circle.

170. The Baroda State has a population of 2,000,225, and an area of 10,767 square miles. There are 31 vaccinators and 3 inspectors under the supervision of the chief medical officer of this State. There are also 39 peons. Each vaccinator has, on an average, 347 square miles, and a population of 64,523. Work was performed in 10 dispensaries; whilst last year it was carried on in 15. In these dispensaries there were 1,848 primary vaccinations and only 2 re-vaccinations—both successful. Of the primary vaccinations 1,825, or 98·76 were successful. The 31 vaccinators primarily vaccinated 46,438 persons and re-vaccinated 248; of these 43,737, or 94·18 and 172, or 69·35 per cent were successful. The protection afforded was 21·95 per 1,000 of population. Each vaccinator averaged 1,506 persons, and the cost of each successful case was Annas 4-3, or 1 anna and 5 pies more than last year. The total expenditure was Rs. 11,558-14-4. In this State, out of every 100 infants available for vaccination, 52·34 were successfully vaccinated. In this respect it heads the list.

Progress in the Cutch Circle.

171. The Cutch State has a population of 487,305, in an area of 6,500 square miles, and there is 1 Assistant Superintendent of Vaccination with 15 Vaccinators and 16 Peons. Each vaccinator has an average population of 32,487, and an area of 433 square miles. Of 11,312 primary vaccinations and 451 re-vaccinations, 10,354, or 91·53 and 361, or 80·04 per cent were successful. The protected were 21·99 per 1,000 of population. Each vaccinator operated, on an average, on 784 persons. The total expenditure was Rs. 6,354-8-7; and the average cost per each successful case was Annas 9-6, or Annas 2-3 more than in last year. The decrease of work in this State was unavoidable, as cholera and fever were so terribly prevalent causing 5,686 deaths among children under ten years of age. There was not a single case of small-pox in the State.

Progress in Aden.

172. Aden has an area of 11 square miles, and a population of 19,289. The municipality defrays the cost of one vaccinator and one peon. This vaccinator carries on his work under the supervision of the Civil Surgeon. There were 826 persons primarily vaccinated and only one re-vaccinated, in whom the result could not be ascertained. Of the primary vaccinations 665, or 80·51 per cent were successful. The rate of protection afforded was 34·53 per 1,000 of population. The total cost was Rs. 360, and the average cost per each successful case was Annas 8-3, or Annas 2-7 more than in 1877-78. It was owing to increased expenditure.

Progress in Bassadore and Muscat.

173. In Bassadore and Muscat the work was carried on by the dispensary medical officer in the former, and the Civil Surgeon in the latter. Only 13 persons, in Bassadore, were operated on; and of these 2 were re-vaccinated. All the operations proved successful. In the Civil Hospital, at Muscat, 108 persons were primarily vaccinated; of whom 82, or 77·36 per cent were successful. There were 4 re-vaccinations, and all were successful. The area and population of Bassadore and Muscat are not known.

Tour of Deputy Sanitary Commissioners and Superintendent of Vaccination.

174 (*a*).—In the Northern Deccan Registration District, the Deputy Sanitary Commissioner went through the Erandol and Pachora tálukas of Khándesh; all the tálukas of Násik, the tálukas of Párner, Shrigonda, and Sangamner in Ahmednagar; all the tálukas of Poona except Purandhar and the Mádha and the Pandhárpur tálukas of Sholápur. No Native States were inspected. He travelled over 2,636 miles, visited 166 villages, examined the work of 28 vaccinators and 9 dispensary officers, and inspected 7,108 children.

(*b*).—In the Southern Deccan, Dr. Greany went through all the tálukas in Belgaum except Bidi; through the Dhárwár, Hubli, Navalgund and Gadag tálukas of Dhárwár; through the Bagalkot, Bágevári, Bádámi and Bijápur tálukas of Kaládgi and the tálukas of Valva and Karad in the Sátára Collectorate. The Native States he passed through were, Sangli and Shahapur of the Sángli State; Mudhol, Kurundvád and Ramdurg in the Southern Maratha Jághírs and Inchalkaranji, Kágal, and Kolhápur in the Kolhápur States. The total number of children inspected was 7,380 in 63 villages. The number of miles travelled was 1,105 in 80 days.

(*c*).—The Deputy Sanitary Commissioner of the Konkan Registration District, passed through the tálukas of Salsette, Kalyán, Bhiwndi, Murbád, Panvel and Karjat in Thána; all the tálukas of Kolába, except Alibág; and all the tálukas of Ratnágiri. Kánara was not visited this year, nor were the Native States. He inspected 16,795 children in 352 villages. The number of miles travelled was 1,282 in 111 days.

(*d*).—Dr. Colah, in the Eastern Gujarát Registration District, went through the Chorási Táluka of Surat, through Jambusar, in Broach; all the tálukas of Kaira, except Borsad; all the tálukas of the Panch Maháls and the táluka of Daskroi in the Ahmedabad Zilla. He also went through the Native States of Cambay and Rájpipla, Chhota Udepur and Sankheda Mewas in the Rewa Kántha. He travelled 1,629 miles in 155 days. He inspected the work of 22 vaccinators and 4 dispensaries, and saw 8,430 children in 411 villages.

(*e*).—In the Western Gujarát Circle the Superintendent of Vaccination, Dr. Welsh, went through the States of Wadhwán, Sayela, Jasdan and Wankaner in the Jhálavád Prant; Rájkot, Drapha, Dhoraji, Sultánpur and Gondal in the Hallár Prant; all the States in the Gohelvád Prant, and all the States except Mángrol, Bántva, and Mádhaopur in the Sorath Prant. He made 55 encampments, travelled over 1,133 miles in 108 days and inspected 6,677 children in 201 villages.

(*f*).—Lastly, in Sind, the Deputy Sanitary Commissioner went through the tálukas of Kotri, Tatta, Kurrachee and Mirpur Sákro in the Kurrachee Collectorate; Hyderabad, Hála, Sakrand, Morá, Naushahro and Khandiáro in the Collectorate of Hyderabad; Shikárpur, Sakkar, Rohri, Saidpur, Ghotki and Mirpur Mátelo in the Shikárpur Collectorate, and the tálukas of Jacobabad, and Thul in the Upper Sind Frontier. The Native State of Khairpur was also visited. No travelling was this year done in the Thar and Párkar district. He inspected 9,134 children in 243 villages, and travelled 1,191 miles in 63 days. The five Deputy Sanitary Commissioners and the Superintendent of Vaccination have visited all the districts, except Kánara and Thar and Párkar, and all the Native States, except those in the Northern Deccan and Konkan, and the States of Jamkhandi, Miraj, Sátára Jághírs, Savanúr, Dharampur, Bánsda, Sachín, Pálanpur and Mahi Khánta. There were 326 encampments, 621 travelling days, 8,976 miles travelled, 1,436 villages visited, and 55,524 children inspected.

The Bombay Vaccination, Act No. I of 1877.

175. This is the first complete year in which the Compulsory Vaccination Act has been worked in Bombay city; and though the quality of the work has improved the amount is still below what it should be. The Superintendent has worked it with great toil and zeal; but he finds himself hampered in many directions. He complains that the establishment is saddled with extra and onerous duties in consequence of the prefunctory way in which the Registrars of Births and Deaths perform their duties. The Act provide that these Registrars shall furnish a monthly return of all children unprotected; and if this return were faithfully rendered their would be little difficulty; but in very many instances it is

absolutely misleading. The Act can never be worked satisfactorily until there is a change in the present system under which births and deaths are registered. The original grant by the Municipality to defray the expenses for carrying out the Act was Rs. 10,764, finally sanctioned under Government Resolution No. 101, dated 11th January 1878, General Department.

176. Last year it was shown that the quality of the work done during the seven months since the Act came into force was superior to that in the preceding five months, or to that of previous years; and this year shows further improvement. The following statement, compiled from that at pages 40 and 41 of this report, illustrate this very conclusively :—

Years.	Ratio per 100.														
	Persons Primarily Vaccinated.								Total number of Persons Operated on. P = Primary Vaccinations. R = Re-vaccinations.			Results.				Excess of Operations over Persons.
	Caste.					Age N = Number. S = Successful.			Sex.							
	Christians.	Hindus.	Muslmans.	Parsis.	Other Castes.	Under 1 year.	Between 1 and 6 years.	All other ages.	Males.	Females.	Total.	Successful.	Unsuccessful.	Unknown.	Total.	
1878-79 ..	7·16	53·45	20·84	9·37	9·18	N 70·93 S 62·07	27·70 23·84	2·27 1·61	P 50·88 R 91·11	49·12 8·89	100 100	87·52 57·63	1·55 29·27	10·93 13·10	100·37 100·22	4·37 0·22
" ..	..	..	..	..	..	..	..	..	59·15	40·85	100	81·37	7·25	11·38	103·52	3·52
1877-78 ..	8·17	62·51	12·39	8·46	8·47	N 69·83 S 61·42	27·29 23·62	2·88 1·98	P 53·31 R 92·97	46·79 7·03	100 100	87·02 50·66	3·94 28·12	9·04 21·22	103·68 100·39	3·68 0·39
..	..	..	..	..	..	..	..	..	61·81	38·19	100	79·15	9·18	11·67	103·09	3·08

This shows improvement, except as regards Christians, Hindus and the "unknown" cases and secondary operations under primary vaccinations. The fall under Hindus is 9·06 per cent. The number of unknown cases are more by 1·89 per cent.

SECTION IV.

SANITARY WORKS (MILITARY).

THIS section consists of extracts taken from the Annual Cantonment Reports of the Executive Engineers in charge of military stations.

The actual outlay on sanitary works, Military, during 1878 amounted to Rs. 7,01,148. Of this sum Rs. 4,84,644 were expended at Ahmedabad, principally on barracks for Royal Artillery and British Infantry; Rs. 56,314 were expended at Colába, and a considerable portion (Rs. 53,043) was for reconstructing the Depôt Barracks and auxiliary buildings; Rs. 49,072 were expended at Deesa for certain additions and improvements to the Royal Artillery and British Infantry Barracks; Rs. 22,855 were expended at Mount Abu Sanitarium, and of this sum Rs. 18,640 were spent for removing the old roof of the Abu Lawrence School and constructing a double-tiled one on teakwood framing; Rs. 22,422 were expended at Sirúr for constructing a new hospital; Rs. 13,417 were expended at Asirgarh, a considerable portion of which was spent for improving the water-supply for the garrison; Rs. 12,575 were spent at Baroda, of which Rs. 9,905 were for improving the ventilation of the barracks occupied by European troops; and Rs. 10,236 were expended at Poona, of which Rs. 5,281 were for re-constructing servants' quarters at Ghorpuri.

The following table shows the total amount spent on sanitary works (Military) at each station during the year 1878:—

STATION.	Actual Outlay.	STATION.	Actual Outlay.
	Rs.		Rs.
Poona	10,236	Asirgarh	13,417
Kirkee...	586	Mehidpur	.....
Ahmednagar	423	Neemuch	4,401
Sholápur*	.....	Nasirabad	776
Málegaon	2,396	Belgaum	2,603
Sátára...	897	Dhárwár	.....
Sirúr	22,422	Kolhápur*	.....
Purandhar	442	Colába	56,314
Ahmedabad	4,84,644	Bombay...	2,301
Deesa	49,072	Thána	.....
Mount Abu	22,855	Devláli	.....
Baroda	12,575	Kurrachee	.....
Rájkot...	2,843	Hyderabad	.....
Bhuj	.....	Jacobabad*	.....
Surat	.....	Aden	9,141
Mhow	259		
Indore...	2,545	• Total ...	7,01,148

* Reports on these stations not received.

POONA DIVISION OF THE ARMY.

Stations—POONA, KIRKEE, AHMEDNAGAR, SHOLA'PUR, MALEGAON, SA'TA'RA, SIRU'R, PURANDHAR.

POONA.

Lieutenant-Colonel C.A. Goodfellow, V.C., R.E., Executive Engineer, Poona and Kirkee, reports that the following sanitary works were undertaken during the year 1878:—

Wanowri Barracks.—In the upper storied barracks (old set) all the windows on the upper floor have had three iron bars fixed to each horizontally to prevent accidents; in the same manner the upper verandah railings of the new barracks have been raised a foot higher. Estimated cost, Rs. 1,541; actual outlay, Rs. 1,105.

In the upper stories of all the barracks, the end water rooms have been converted into night urinals and iron pipes fixed to them to carry off flushing water to the pails placed on the ground outside. Estimated cost, Rs. 361; actual outlay, Rs. 258.

Open paved drains have been made to the bath-rooms in the end quarters of No. 80 pattern in the Wanowri lines. Estimated cost, Rs. 35; actual outlay, Rs. 35.

The raised sinks in the cook-house at Wanowri which were inside have been removed outside, enlarged, and made of convenient height for cooks to wash utensils. Estimated cost, Rs. 338; actual outlay, Rs. 338.

Other works.—Servants' quarters near the European hospital were demolished and reconstructed to the east of the hospital about 200 feet. They are in two blocks, married and single; the married men's blocks accommodate 12 families, and the single, 43 men. The buildings are of stone and lime; roof double-tiled, doors planked and windows shuttered in each block north and south ends; height of main walls is 8 feet; length of single men's block 112 feet, and that of the married men's 112 feet also. Estimated cost, Rs. 6,456; actual outlay, Rs. 5,281.

A V-shaped drain has been constructed of stone and lime to the south of the European hospital at Ghorepuri so as to carry off surface drainage in front of the hospital and to prevent water flowing into the Apothecary's quarters and compound. The length of the drain is 275 feet. Estimated cost, Rs. 133; actual outlay, Rs. 133.

All open drains leading from the bath-rooms of the married men's quarters in the Ghorepuri lines have been thoroughly pointed with Portland cement to prevent soakage; also the bathroom paving has been pointed with Portland cement and skirting 6 inches high all round to prevent the walls of buildings being constantly saturated as heretofore.

New cast-iron waste water pipes have been fixed in each bathroom; the old pipes were of sheet iron and soon corroded and fell to pieces. The two pipes from adjoining bath-rooms had only one outfall, and then they were not straight and so difficult to cleanse. The pipes are now fixed independently of each other, and each is quite straight. Estimated cost, Rs. 270; actual outlay, Rs. 262.

Alterations have been made to the east side of two (Nos. 63 and 69) old cook-houses in the Ghorepuri lines for cutting up and preparing purposes, which was badly needed, as previous to this addition the meat and food generally was prepared in the front verandah. A meat safe, cupboard, &c., have been provided. Cook's sleeping quarters at north and south ends were also added. Estimated cost, Rs. 3,512; actual outlay, Rs. 2,466.

Alterations have also been carried out to No. 64 cook-house in the Ghorepuri lines to fit it for a coffee shop; the longitudinal choolas have been removed and choolas erected at the north and south ends; arches turned over and chimney carried up clear of the roof, and windows have been altered; also doors to correspond. Estimated cost, Rs. 486; actual outlay, Rs. 358.

KIRKEE.

Lieutenant-Colonel C. A. Goodfellow, R.E., Executive Engineer, Poona and Kirkee, reports as follows:—

Sanitary works undertaken during the year 1878.—An open masonry drain 1′ 9″ wide at top, 9″ at the bottom, and 9″ in height has been constructed at the Patcherry at new Jhansi, and to this central drain the unclean water from the cook-rooms and bath-rooms is carried by means of small masonry channels. Masonry cesspools 6′×4′×4′ have also been provided at convenient places for the storage of the dirty water from the cook-rooms, and bath-rooms have been constructed for the Staff Serjeants' and Conductors' quarters. Estimated cost, Rs. 634; actual outlay, Rs. 586.

AHMEDNAGAR.

Mr. Howard, C.E., Executive Engineer, Ahmednagar, reports that the works that come under the head of "Sanitary," carried out by the Public Works Department in the year 1878, were insignificant.

Bhingar and Shâhpur Aqueducts.—Supplying new coping for the parapet of the dipping wells on the line of the aqueducts within the camp limits. Estimated cost, Rs. 361; actual outlay, Rs. 152-5-6.

The object of this work is to prevent bhistis standing on the parapet when drawing water. This is effected by a right-angled triangular coping of cut stone. The work is almost half completed, but suspended owing to stoppage of public works.

Temporary Artillery Lines.—Paving with stone the floor of the grain store-room. Estimated cost, Rs. 66; actual outlay, Rs. 65-10-8. The floor being of moorum was infested with white ants. A stone floor of second sort cut-stone was laid in place of it.

European Infantry Lines.—Improving the efficiency of the open masonry drain to two of the patcherry blocks. Estimated cost, Rs. 143; actual outlay, Rs. 142-15-2.

The improvements proposed and carried out are as follows:—1*st*. The existing receptacles at the end of the blocks have been done away with, and others of large capacity are provided in rear. 2*nd*.—Separate small receptacles at the end of the bath-room of No. 60 and to those at the end of No. 102 have been constructed. 3*rd*.—Portions of the existing drain altered, and new drains from each bathroom to the cesspools have been constructed.

Royal Artillery.—Constructing two temporary urinaries. Estimated cost, Rs. 25; actual outlay, Rs. 24-15-6.

These urinaries are intended for native followers of the battery and are situated close to their lines. They are $6' \times 4'$ in dimension, constructed of bamboo on teak framing.

Native Infantry Lines.—Paving a portion of the floor of the quarter-guard room. Estimated cost, Rs. 38; actual outlay, Rs. 37-15-4.

A space of 3 feet in breadth and 30 feet in length, on which the sentry walks in the centre of the room and a piece connecting this with the door, measuring $7\frac{1}{2}' \times 4'$ has been paved with cut-stone, second sort, the remaining portion of the floor being of moorum.

MA'LEGAON.

Major Mander, R.E., Executive Engineer, Khándesh District, gives the following information regarding the sanitary works undertaken during 1878:—

The two latrines which were built in 1869 at a cost of Rs. 1000 and Rs. 677 respectively for the use of the Mountain Train at Málegaon, having lost their roofs and being generally out of repair, were sold by auction by order of the Officer Commanding at Málegaon. These latrines had not been used for several years.

Quarters for two Hospital Assistants have been constructed, giving accommodation as under: two rooms, each $16' \times 12'$ interior dimensions, with a 6-feet enclosed verandah back and front.

Servants' Quarters.—Four rooms, $8' \times 12'$, interior dimensions 12 feet high with a dhaba roof, supported on walls and teakwood square beams. The above were sanctioned in G. R. No. 308 of 5th March 1878 and constructed at a cost of Rs. 1,856-15-0.

A guard-room, $20' \times 12'$ and 12 feet high interior dimensions, with an open verandah, 7 feet, in front and rear, sanctioned under G. R. No. 925 of 22nd June 1878, at an estimated cost of Rs. 1,303 was commenced, and the foundations put in, but the further progress of work has been suspended under the recent orders of Government. The expenditure on the work has been Rs. 539-13-8.

SA'TA'RA.

Captain Cruickshank, R.E., Executive Engineer, Sátára, gives the following information regarding the sanitary works undertaken during 1878:—

Additions and alterations to the European Infantry Barracks at Sátára.—The wash-house at either end of each barrack was considered to be very indifferently ventilated and lighted, the moorum floor of the Serjeants' room at end of each barrack was likewise deemed objectionable, the other part of the building being stone-flagged. To remedy the state of things, the necessary openings in the east verandah of a doorway, $3\frac{1}{4}' \times 6\frac{1}{2}'$, have been provided, and the Serjeants' room stone-paved. Estimated amount, Rs. 659; actual cost, Rs. 656-6-3.

Providing a masonry receptacle for waste water and a dust-bin to the lavatory and cook-house of No. 1 barrack at Sátára.

The arrangement of carrying off waste water from the wash-house, by means of an open channel extending to one of the nullahs crossing the plain was considered objectionable, as the water from the lavatory did not flow beyond a point, one hundred feet distant (in the dry season), where it remained stagnant, pending its eventual absorption into the sub-soil or by evaporation, ere which it became mixed with foreign matter from the cook-house and thereby generates an offensive and unwholesome effluvium. To remedy the state of things, a more effectual system of waste water drainage by substituting a masonry receptacle of sufficient capacity to contain one day's wastage, having an iron grating at top with a trap-door in the centre sufficiently large to admit of a man passing through, has been provided. The receptacle has been provided at a distance of 20 feet from its source and connected therewith by a masonry drain.

A masonry dust-bin for the cook-house has also been provided. Estimated amount, Rs. 94; actual cost, Rs. 93-15-2.

Providing a moat and trough to the well in the Commissariat lines at Sátára. In order to obviate the tedious system of drawing the water from the well for a number of animals by means of hand buckets, an estimate was sanctioned, in which a moat and a trough have been provided and constructing a masonry platform, &c., to be worked by bullock-power. The work is suspended under orders of Government. Estimated amount, Rs. 249; actual cost, Rs. 76-15-2.

Cantonment Road.—The road at the back of the iron-roofed barrack having been damaged every year by the overflow of its side gutters on account of insufficient water-way, similar damage also occurring at the junction of the roads near No. 13 barrack, two dry stone drains, 20 feet long, have been provided transversely across the road at these points. Estimated amount, Rs. 70; actual cost, Rs. 69-15-8.

SIRU'R.

Major Seton, R. E., Executive Engineer, Poona District, gives the following information regarding the sanitary works undertaken during the year 1878:—

The Imperial Budget of the year 1878-79 provided a sum of Rs. 22,000 for constructing a new hospital, converting the present hospital into a guard-room, constructing cells, and certain other works, amounting in all to Rs. 29,972. As it was not possible to carry out the entire project owing to insufficiency of funds, the following were selected for construction, as being the most emergently needed, viz.:

(1)	Hospital	Rs. 12,711
(2)	Washing-rooms and privies for ditto	„ 2,958
(3)	Cook-house for hospital	„ 928
(4)	Converting the present hospital into a standard guard-room	„ 4,521
(5)	Cells	„ 1,304
		Rs. 22,422

The above will all be completed by the close of the current official year and will add very greatly to the comfort and convenience of the troops.

The hospital contains one large ward, 48′ × 20′, capable of accommodating sixteen patients, and two smaller wards, 21′ × 20′, for six and four patients respectively. The walls are 13′-6″ to under the beams and stand on a plinth 3 feet high. A verandah, 9′-9″ wide, extends the whole length of the building front and rear, with the exception of the two ends, which are enclosed as a dispensary, surgery room, &c. A scullery, 10′ × 10′, washing-room, 10′ × 10′, and latrine, 10′ × 8′-3″, are provided at each end of the hospital in a semi-detached building.

Cook-house for hospital contains two compartments, each 18′ × 14′, for the use of Mussulmans and Hindoos respectively. Roof supported on pillars with intermediate screen walls.

Guard Room.—The old hospital has been entirely removed and on its site erected a building, containing a guard-room 49′ × 16′, lock-up 18′ × 16′, and store-room 12′ × 16′, with a verandah front and rear, 7½ feet wide, walls 14 feet high standing on a plinth 18 inches to 2 feet above ground level.

Cells.—Two each, measuring 10′ × 10′, with an attached latrine, 4′ × 4′, have been provided.

PURANDHAR.

Major Seton, R. E., Executive Engineer, Poona District, gives the following information regarding the sanitary works undertaken during the year 1878:—

Commissariat Slaughter Shed.—The roof has been widened 5 feet. A corrugated iron-screen being placed at the opened end, corresponding with the existing one at the other to prevent the rain beating in during the wet weather.

A drain has been constructed to carry off the water from the eaves and keep the floor dry. The estimated cost of the above is Rs. 106; actual expenditure, Rs. 105-13-8.

Bamboo trellis work screen in front of the native latrine. The screen is 105 feet long and 8 feet in height, constructed of bamboo trellis work secured to round teak posts and horizontal piece. Estimated cost, Rs. 51; actual expenditure, Rs. 50-15-3.

Additions and alterations to the Hospital Serjeants' Quarters.—The quarters afford the superficial area allowed for a Serjeant—Class B—but the sitting room being too large and the bed room too small, the latter was being increased in size by reducing that of the former and a bath-room being provided in this end of the back verandah when the further construction of this work was suspended under the operation of Government Resolution No. 274 A.-1761, dated 4th December 1878, suspending all works, Imperial and Provincial, for the present. Estimated cost, Rs. 647; actual expenditure to present unfinished state, Rs. 175-10-10.

Cleaning out the large Tanks, East and West.—The area of east tank is 13,623 feet, that of the west 22,460 feet. An average depth of from 1 to 2 feet of silt being in the bed of each, its removal was carried on until the commencement of the rains put a stop to the work, leaving it not quite finished. Estimated cost, Rs. 180; actual expenditure, Rs. 109-12.

NORTHERN DIVISION OF THE ARMY.

Stations—AHMEDABAD, DEESA, MOUNT ABU, BARODA, RAJKOT, BHUJ, SURAT.

AHMEDABAD.

Lieutenant Fuller, R. E., Executive Engineer, Ahmedabad Division, reports that the following sanitary works were undertaken during the year 1878:—

Barracks for Royal Artillery.—Barrack No. 3 in progress last year was completed in January 1878 and handed over to the military authorities. It affords accommodation for 44 men and 2 serjeants, and is of exactly the same plan and construction as the Royal Artillery barracks Nos. 1 and 2. The out-buildings are also similar except that no cart-shed is provided for the latrine. Estimated cost of one barrack with subsidiary buildings, Rs. 68,430; outlay up to 31st December 1878 on barracks Nos. 1, 2, and 3, Rs. 1,96,364.

Family Quarters with Out-houses for R. A.—These are three in number, two of which have been completed and handed over; the third is just complete, and will be made over shortly.

Each block affords accommodation for six families, and all the dimensions are in accordance with the standard plan. A full description with dimensions, &c., of the block has been given in last year's Report.

Each block has been provided with the following out-houses—two cook-rooms, two servants' quarters with verandah in front, and four privies (two at each end) in rear with covered passage.

The construction of the out-houses is similar to that of the family quarters, except that the walls are not plastered inside and the floors are of earth well rammed. Estimated cost for three blocks, Rs. 73,844; outlay up to 31st December 1878, Rs. 67,205.

Gun Shed for Royal Artillery.—This building has been completed and handed over. It is 96 feet long and 55 feet broad and 10 feet high up to tie beams. There are eight gates, each 4′ × 8′, one for each sub-division in front for gun carriages, and one, 5′ × 8′, in rear of the second sub-division for a fire engine. Each of the sub-divisions is provided with cut-stone racers with an earth and kunker ramp in front and iron gratings 5′ × 8′ in rear. The floor of the gun shed is of earth, kunker, and sand, well consolidated.

Two store rooms, one 26½′ × 22′ × 13′ for Battery, and the other, 32′ × 22′ × 13′, up to the beams for Quarter Master's stores, both under one roof, with a verandah 9′-6″ wide in front, are provided on the right hand side of the gun shed.

The construction of this building is of pucka masonry (burnt brick and lime), the roof being double-tiled on cut teak trusses, &c., with double bamboo mat. The gates of the gun shed are of strong teak frames with iron bars, &c., embedded in large cut-stones. Estimated cost, Rs. 18,792; outlay, Rs. 16,988.

A new line of Stables for Sick Horses of a Battery of R. A. with Rooms for Farriers and Surgery and a Boiler House.—This has been completed. It consists of eight stables, seven of which are 9′ × 10½′ each, and the remaining one is 11′ × 10½′. The buildings are surrounded by a rectangular compound wall, of which the stables form one side, the farriers' and surgery rooms being on the opposite side, and the boiler house between the stables and surgery. The compound is about 80 feet square and has a water trough 6′ × 4′ in the middle, and a gateway 10 feet wide near the farriers' room. The masonry throughout the building is pucka. Estimated amount, Rs. 5,314; outlay, Rs. 4,846.

Stable Picket Room with Gram Store and Chaff Cutting Room for R. A.—This has been completed. It consists of picket room 15′ × 18′, gram store 9′ × 18′, chaff room 9′ × 18, under one roof with a verandah 5 feet wide in front, the height up to beam being 15 feet. The roof is double-tiled, the picket room being provided with a wooden ceiling with perforated zinc ventilators along the centre. All masonry work of burnt brick and lime. Estimated amount, Rs. 2,820; outlay, Rs. 2,686.

Dispense Magazine for R. A.—This building is 14 feet square and 14 feet in height up to springing with a semi-circular arch at top, the floor being raised 3 feet above the adjacent ground. A verandah 6 feet wide is provided in front, and the whole when complete will be surrounded by a compound wall 10 feet in height at a distance of 13 feet from the walls of the magazine.

The work has been suspended under recent orders of Government. The building is almost complete, the only items remaining being plaster to the inside, doors and windows, plank floor, verandah roof, and a portion of the compound wall. Estimated cost, Rs. 4,506; outlay, Rs. 2,678.

Canteen for Royal Artillery.—It consists of a room 33′ × 22′ × 18′ with a verandah about 10 feet wide on three sides and corporal's room 14½′ × 11½′, suppliers' room 14¾′ × 11½′, and beer room 14½′ × 11½′ in rear. An additional room 24′ × 14½′ for monthly supply of beer has also been provided.

The building is raised to a height of about 8 feet above plinth, and is suspended under recent orders of Government. Estimated amount, Rs. 10,725; outlay up to 31st December 1878, Rs. 3,208.

Additions and alterations to Barrack No. 18 for R. A.—These consist in adding certain partitions and converting the building so as to give accommodation for the following:—

Orderly-room Serjeant, Brigade orderlies, Brigade clerks, Battery orderlies, Adjutant's office and Clerks, Battery Quarter-Master's stores, Serjeants' mess, pantry, recreation-room and coffee rooms, and cutlers' and caterers' rooms.

The Orderly Serjeants' rooms have been finished, and temporary arrangements for the offices and clerks have been made, but the remainder of the work is in abeyance pending a reply to the reference made regarding the redistribution of accommodation required. Estimated amount, Rs. 9,825; outlay up to 31st December 1878, Rs. 5,169.

An Iron Girder Culvert.—This having a water-way of 12 feet and roadway 12 feet wide with buckle plates and iron railings has been constructed across the nallah near the Royal Artillery lines out of the savings effected on the barracks. By building this culvert

he difficulty previously felt during heavy rains on passing and repassing from the barracks to the main roads has been removed. Estimated cost, Rs. 954; outlay, Rs. 903.

Barracks for Half Company of British Infantry.—These are two in number, one of which was reported as completed in last year's Report, and the other is completed this year. It affords accommodation for 48 men and 2 Serjeants, and is 18 feet longer than Barrack No. 1, and is exactly of the same construction. The out-buildings are also similar, except that no cart-shed is provided for the latrine, and the full company cook-house handed over with Barrack No. 1 is intended for the use of men living in this barrack also.

The construction and dimensions are similar to those of the Royal Artillery barracks. Estimated amount for two barracks and out-buildings, Rs. 1,42,706; outlay up to 31st December 1878, Rs. 133,011.

Buildings common to both arms, Artillery and Infantry.—Under this head the following buildings have been completed and handed over during this year :—

Plunge bath and well and skittle shed. The first is 66′ × 22′ × 10½′ and is raised on a plinth of 5½ feet. It is built of pucka brick masonry walls, having a door and two windows in front and rear and six windows on each side. It has a double-tiled roof with Howard's ridge ventilator at top. The bath is 46′ × 14′ at top and 7 feet deep at the north and 4 feet at the south end with flights of steps at both ends and in the middle of the sides.

Four dressing rooms, each 6′ × 6′, have been provided at each corner of the building. The floor is flagged with fine dressed stones on concrete and the both is plastered with lime and Portland cement.

A urinary 7′ × 7′ × 7½′, similar in all respects to those provided for the new barracks, has been constructed for the plunge bath.

A well for the bath, 10 feet in diameter, 18½ feet deep under water, and 26 feet above, has been constructed. The water is raised by means of double moat-and-drum arrangement. Estimated amount, Rs. 8,838; outlay, Rs. 8,838.

The second building (skittle-shed) is 69′ × 20¼′ × 9½′ in height up to bottom of rafters with verandah 5′-3″ on both sides. The walls are of burnt brick and lime, and are carried 1′-6″ above, the teak benches provided on both sides of the building for lookers-on. The roof of the main building is double-tiled, supported on masonry pillars, and that of the verandah is single-tiled on teak posts. The floor is of earth. Three teak wicket-gates, each 4′ × 2′ × 9″ on each side have been provided. Estimated amount, Rs. 2,467; outlay, Rs. 2,448.

Dead House for the Hospital for British Troops.—This has been constructed. It is 18′ × 12′ × 15′, with burnt brick and lime walls, plastered inside and colour-washed outside The roof is double-tiled and floor of asphalte on a bed of concrete with a slope towards one corner, in order that when washed the water may be conveyed outside the building. Estimated amount, Rs. 1,896; outlay, Rs. 1,724.

A Grass Hut for the reception of Small-pox cases among Europeans.—This has been erected. It is 56′ × 12′ × 10′ and divided into four rooms, each 14′ × 12′, with verandah 5′ feet wide in front and rear. The floor which is raised 2 feet is of earth. The roof is of grass, 9 inch thick for the main rooms and 6 inches for servants, supported on round teak posts, &c. Estimated amount, Rs. 397; outlay, Rs. 381.

Armourer's Shop for the 1st Grenadier Regiment N. I.—This building, which was reported in last year's Report, has been completed. According to the standard plan and estimate it consists of two workshops, one 20′ × 18′, with a bench and cupboard arm and tool-racks, and the other 12′ × 18′, which contains a forge, browning trough with furnace, separated by cross wall from the drying room 12′ × 5′, which is fitted with racks for gun barrels and warmed by the flue of the browning trough, &c.

The construction of the building is pucka burnt brick and lime masonry with double-tiled roof and floor of stone on 6 inch concrete. Estimated amount, Rs. 3,200; outlay, Rs. 3,031.

Armourer's Shop for Native Infantry Regiment.—This building is in all respects similar to the workshop of the 1st Grenadier Regiment N. I., and has been built according to the standard plan and estimate. Full description and construction is given above under Armourer's Shop for 1st Grenadier Regiment. Estimated amount, Rs. 3,200; outlay, Rs. 3,176.

Conversion of building No. 79, formerly used as Solitary Cell for the Golundaze and, now as a Barrack Store, into a Magazine for the storage of Ammunition for the Native Troops.—This building has been converted into a magazine for the Native troops, and it consists of two rooms 13′ × 8′ with enclosed verandah rooms 8′ × 6′. The lightning conductor of copper rod, 8 feet long and ¾″ diameter, projecting 5 feet above the highest point of roof, has been supplied to the magazine. The masonry is of burnt brick and lime and wood work of cut-teak with brass fastenings. Estimated amount, Rs. 390; outlay, Rs. 375.

Additions and alterations to the old Married Men's Quarters, Nos. 12, 13, and 20, to utilize them into Barrack Master's Office and Stores.—These blocks have been converted into Barrack Master's office and stores. The partition walls of both back and front rooms have been pierced and flat arches constructed leaving the building open from end to end. A portion of No. 20 has been divided off to serve as an office for the Barrack Master, as also for small stores. An open shed has been constructed in the compound of No. 20 for conservancy carts. Estimated cost, Rs. 1,091; outlay, Rs. 1,079.

Cattle Shed and Slaughter Yard.—This building, which was reported in last Report, has been completed and handed over during this year for use. Full particulars as regards the construction and dimensions were given therein. Estimated amount, Rs. 14,242; outlay. Rs. 14,261.

Commissariat Stores.—The new store rooms consist of an office 20′ × 14′ × 13′, arrack room 38′ × 14′, two porters' rooms each 100′ × 14′, a medical comfort room 60′ × 14′, and a cooper's shed 20′ × 14′, the whole except the last having a verandah 6¾′ feet in front. It is a pucka building having masonry walls and double tiled roof. The floors will be of asphalte and the ramps in front of doors are of cut stone.

The building is almost complete, and will be handed over during the course of next month.

A privy with two seats has been provided in the compound which is to form a part of the fort of refuge at this camp. Estimated amount, Rs. 19,188; outlay up to 31st December 1878, Rs. 14,658.

A new Church for the Protestants in Camp.—This has been commenced. It consists of a nave 72′ × 26′ × 22′ with an arcaded verandah 9 feet wide on two sides, chancel 24′ × 18′ × 20′, vestry 10½′ × 11¼′, and a room for organ, and gives accommodation for above 200 persons. The foundations of this building have been filled in, and it has been suspended under recent orders of Government. Estimated amount, Rs. 24,393; outlay up to 31st December 1878, Rs. 1,615.

DEESA.

Mr. J. M. Span, C.E., Executive Engineer, Abu and Deesa Division, reports that the following sanitary works were undertaken at Deesa during the year 1878:—

Royal Artillery.—An additional shed for six wagons was asked for. The work was estimated to cost Rs. 1,910, and completed at an outlay of Rs. 1,850. The work was commenced last year and completed during the year.

Certain additions and alterations were required to be made to the Canteen, the estimated cost of which was Rs. 1,435 and completed at a cost of Rs. 1,354.

The iron chullas in the cook-houses attached to the barracks were renewed at a cost of Rs. 240 against an estimated cost of Rs. 241.

Certain alterations to the Quarter-Master and Serjeant-Major's quarters were carried out at a cost of Rs. 465, the estimated cost of which was Rs. 463.

The hanging shutters of the wagon shed were removed and replaced by frame doors covered with bamboo matting, the cost of which amounted to Rs. 462 against an estimated cost of Rs. 490.

The barrack No. 5 in the Royal Artillery lines has had its floor paved with stone at a cost of Rs. 4,297 against an estimate which was sanctioned for the purpose for Rs. 4,297.

Ordnance Department Magazine.—The wooden floor of the magazine was renewed at a cost of Rs. 44 against an estimated cost of Rs. 44.

European Infantry.—Certain additions and alterations were recommended to be carried out to the Canteen. The work was completed at a cost of Rs. 5,025-14-4, and the estimated cost was Rs. 5,387.

The walls that surrounded the European Infantry cells were removed at a cost of Rs. 64; the estimated cost was Rs. 307.

Certain improvements were recommended to the rifle ranges, and completed at a cost of Rs. 1,654 against an estimate of Rs. 1,700.

Bathrooms to the schoolmaster's and schoolmistress' quarters were added at a cost of Rs. 295, the estimated cost of which was Rs. 302.

Four new cells were urgently required in the European Infantry lines. The estimated cost of these amounted to Rs. 4,898 and the actual outlay, on the completion of the cells, amounted to Rs. 4,577.

Punkahs were supplied during the year to the guard-room (No. 1 building) in the European Infantry lines at a cost of Rs. 48; the estimated cost was Rs. 49.

The drain leading from the plunge-bath to the Government garden of the 2/15th Regiment was in bad order and certain improvements done to it. Actual cost, Rs. 121; estimated cost, Rs. 121.

A ration shed in lieu of the one dismantled, while the improvements to the Canteen were in progress, was built at a cost of Rs. 200; estimated cost, Rs. 200.

The plank doors and windows of the European Infantry barracks are being altered to half glazed and half panelled, and the floors are being made of concrete. The estimated cost of the work is Rs. 37,756, and the outlay to end of December 1878 amounted to Rs. 21,899. The work will be finished by the end of March next.

The patcherries numbered 87 to 90 and 115 and 120 in the European Infantry lines have had verandahs (with single-tiled roof) added to the back of each. The estimated cost was Rs. 4,995; actual outlay on the completion of the work amounted to Rs. 3,908.

The new (four) cells recently built have had a verandah added to the south end thereof. Actual cost, Rs. 621; estimated cost, Rs. 650.

Native Troops.—Arm racks in the huts occupied by the men of the Native Infantry were provided. Actual cost, Rs. 851-4-0; estimated cost, Rs. 848.

A beam to the shed for storing in camp equipage of Native Infantry was added at a cost of Rs. 268-7, the estimated cost was Rs. 263.

The stone platforms of the Native Infantry were extended at an outlay of Rs. 196, and the estimated cost was Rs. 224.

A number of additional arm racks were asked for to make up the full complement for the huts occupied by native soldiers, the cost of which was estimated to amount to Rs. 192, and the actual cost thereof at the completion of the racks amounted to Rs. 191.

The wooden sentry boxes in use by the Native Infantry at Deesa were removed, and masonry ones built instead at a cost of Rs. 109; the estimated cost was Rs. 107.

General and Miscellaneous.—Some additions were made to the treasury guard to provide the requisite shelter for the sepoys placed to guard it and a latrine and urinary added. The estimated cost of all this was Rs. 366, against which the outlay, at the completion of the work, amounted to Rs. 332.

MOUNT ABU.

Mr. John Span, C.E., Executive Engineer, Abu and Deesa Division, reports that the following sanitary works were undertaken during the year 1878:—

European Infantry Lines.—A partition wall was erected in the quarters occupied by the Serjeant-Major, the estimated cost of which was Rs. 16, and the work completed at a cost of Rs. 15-12-2.

The old thatched roof of the quarters occupied by the Commandant of the Abu Sanitarium was entirely removed and the pitch of the roof was reduced to 28 degrees. One foot of pucca masonry was added to all the walls on their top, and the whole of the building was re-roofed on junglewood framing with double tiles; the interior of the building was white and colour washed, and the ridges and eaves and hips were laid in lime mortar. The ceiling cloth was renewed, and the building was thoroughly repaired. The work was estimated to cost Rs. 2,160, and was completed at a cost of Rs. 2,181-10-8.

The old thatched roof on the bungalow occupied by the Staff Medical Officer at Abu was entirely removed and the building re-roofed with double tiles laid on new junglewood framing. The work has been completed during the year, the estimated cost of which was Rs. 1,881 and the outlay incurred was Rs. 1,707-11-6.

Two refuse pits were dug for the use of the sanitarium hospital, the estimated cost of which was Rs. 40.

A stable for the quarters occupied by the Barrack Serjeant was erected, the estimated cost of which was Rs. 49, and the outlay incurred was Rs. 48-2-2.

Glass for panels was substituted in the upper part of a door in the Staff Medical Officer's quarters at an outlay of Rs. 4-3-5.

Shelves were provided in the pantry attached to the Staff Medical Officer's quarters at an outlay of Rs. 19-10-11.

The roof of the Abu Lawrence School was of kutcha construction throughout, as mentioned in the previous Report. The old roof was entirely removed and the building was re-roofed with double tiles on teakwood framing, and the boys' dormitory increased by a length of 30 feet, and a new latrine for the boys was added. The cost of re-roofing the building was estimated at Rs. 18,898, and the actual outlay on the work was Rs. 18,640-1-10. The work has been subsequently completed within the above estimate.

A room was added to the quarters occupied by the Second Master of the Abu Lawrence School. The work was estimated at Rs. 256, and the outlay incurred to the end of December 1878 was Rs. 125-14-6.

The wooden posts of the wire fence around the building of the Abu Lawrence School were decayed; they were therefore renewed. The estimated cost for the work was Rs. 43, and the outlay incurred, Rs. 44-11-6.

Drains were made behind each of the servants' godowns in the Abu Lawrence School compound, the estimated cost for which was Rs. 29 and the work completed at a cost of Rs. 28.

BARODA.

The Executive Engineer, Broach Division, reports that the following works were undertaken during the year 1878:—

Constructing the Latrine at the southern end of the Patcherry in the Royal Artillery Lines into Ablution Room.—Four compartments, 14′ × 6′ each, were formerly used as latrines. The seats were removed and chunam floor substituted in place of the earthen one. Two

windows in each compartment were provided with glazed shutters. Estimated amount, Rs. 152; actual cost, Rs. 151-4.

Removing Chunam Floor and substituting Asphalte in lieu of it in the Commissariat Store.—The chunam floor was uneven and broken in many places. It was removed and asphalte floor laid in its place. Estimated amount, Rs. 1,276; actual cost, Rs. 1,273-14-1.

Constructing Cook-house for the Families of the Royal Artillery.—The cook-house measures $21\frac{1}{2}' \times 12' \times 11'$ high the under side of the tie beam. There are eight fire places for the use of the families. Links $3' \times 2\frac{1}{2}'$ are provided at each end of the choola range. The fire places and smoke shafts are according to the standard plan for cook-houses. Estimated amount, Rs. 1,247; actual cost, Rs. 1,245-1-10.

Making certain additions and alterations to improve the ventilation of the Barracks occupied by the European Troops.—Ceiling cloths fixed to teakwood frames have been fixed to four barracks (A, B, G, and I). The ceiling is fixed along to the slope of the roof.

All the windows in the barracks A, and I, and every alternate window in the barracks B, C, E, F, and G, have been removed, and teak panelled and glazed doors substituted in place thereof.

The plain plank shutters of the remaining windows are removed and replaced by glazed ones. Estimated amount, Rs. 10,443; actual cost, Rs. 9,905-4-5.

RA'JKOT.

The Superintendent of Public Works, Rájkot, reports that the following sanitary works were undertaken during the year 1878 :—

Elephant shed for the field column elephants. Estimated cost, Rs. 2,420; actual cost, Rs. 2,362-1-4.

An anemometer and wind wave post and fence for protection of meteorological instruments. Estimated cost, Rs. 228; actual cost, Rs. 227-3.

Constructing eight saddle racks for the use of No. 1 Mountain Battery. Estimated cost, Rs. 254; actual cost, Rs. 254.

BHUJ.

The Superintendent of Public Works at Bhuj, reports that no sanitary works were undertaken at Bhuj during the year 1878.

SURAT.

Major Manson, R.E., Executive Engineer, Surat Collectorate, reports that no sanitary works were undertaken at Surat during the year 1878.

MHOW DIVISION OF THE ARMY.

Stations—MHOW, INDORE, ASIRGARH, MEHIDPUR, NEEMUCH, NUSSEERABAD.

MHOW.

Major Swetenham, Executive Engineer, Mhow Division, reports that the following sanitary work was carried out at Mhow during the year 1878 :—

At Mhow the saucer drains from the six wells in the Native Infantry lines were built. Cost, Rs. 259.

INDORE.

Mr. Eknath Ramchander, Sub-Engineer, Indore, reports that the following sanitary works were undertaken during the year 1878 :—

European Infantry Line Barrack.—Four ridge ventilators (each 12 feet in length) and 44 iron sun-sheds to the clerestory windows of the European Infantry barracks have been executed. The estimated and actual costs of the work are Rs. 608 and Rs. 610 respectively.

European Infantry Barrack Latrine.—Ridge ventilator all the length of the roof and stone pavement in the rear passage of the European Infantry latrine have been executed. Estimated cost, Rs. 320; actual cost, Rs. 319.

European Infantry Hospital.—Three ridge ventilators (each 12 feet in length) have been executed. Estimated cost, Rs. 172; actual cost, Rs. 172.

Well.—Waste water tank for the barrack well has been constructed. Estimated cost Rs. 40; actual cost, Rs. 40.

Native Infantry Lines : 250 *huts in* 10 *blocks.*—The height of the huts has been increased by two feet, as it was two feet less than it is allowed in the standard plan. The estimated cost is Rs. 1,418 ; the actual cost is Rs. 1,404.

ASIRGARH.

The Executive Engineer reports that the following sanitary works were carried out at Asirgarh during the year 1878 :—

Cleaning out of the Sukkur tank and the construction of catch-water drains to prevent the drainage from the bungalows and bázár from flowing into the tank. The well which supplies the garrison with drinking water is fed for the most part from the Sukkur tank, and this water was, in 1877, reported upon as unfit for drinking purposes by the Chemical Analyser to Government at Bombay. It was therefore decided to thoroughly clean out the tank. Estimated cost, Rs. 9,782 ; actual cost, Rs. 9,740.

The construction of the catch-water drains was part of the same scheme, having for its object the preservation of the new supply of water in the Sukkur tank, and to prevent its contamination by the drainage from the bungalows and buildings which are situated in the gathering ground. Estimated cost, Rs. 3,537 ; actual cost, Rs. 3,368.

A latrine has been erected in the compound of the European hospital for the use of the native servants connected with the establishment. There was no provision of the kind before, and they were forced to go some little distance to the latrine by the Native lines. It is similar in its construction to that built for the State prisoners. Estimated cost, Rs. 187 ; actual cost, Rs. 127.

The much-required ventilation has been supplied to the Musjid barracks by means of iron pipes leading out from the roof and carrying away the foul and heated air. Estimated cost, Rs. 194 ; actual cost, Rs. 182.

MEHIDPUR.

Lieutenant A. A. Pearson, Staff Officer, Mehidpur, reports that no sanitary works were undertaken during the year 1878.

NEEMUCH.

Major G. R. Gibbs, S. C., Executive Engineer, Neemuch Division, reports that the following sanitary works were undertaken at this station during the year 1878 :—

Well Coverings.—Some more wells have been covered with stone slabbing during the past year at a cost of Rs. 38.

The rainfall during the monsoon of 1877 was far below the average. As a consequence in the hot weather of 1878, nearly every well in the cantonment and bázár ran dry. Many of them were deepened by blasting at a cost, during 1878, in cantonment and sudder bázár of Rs. 2,821 ; in Commissariat garden, Rs. 1,232.

Two extra wells were excavated near the Native Infantry garden, but not in the black soil. One of these has been steined, and a platform is being placed round it. Both of these gave a good supply of water, and were much resorted to.

Sanitary Measures : European Infantry Barracks.—In consequence of the outbreak of cholera in the Detachment 68th Light Infantry in October and November 1878, the European Infantry barracks were disinfected and cleansed before the arrival of the relieving detachment, 2/17th Light Infantry, and at the recommendation of the Medical Committee, the slabbed floorings and seats of the latrines as well as the floors of the urinaries together with the saturated sub-soil, were taken up, the slabs being replaced, having been well aired and cleaned after fresh moorum had been deposited.

Wash-house Drains : European Infantry Barracks.—As mentioned in last year's Report, great difficulty has always been felt in keeping these drains clean. An open outlet drain has been constructed during the year, and this will also serve as a drainage channel. It has since, however, been decided to close all these drains except the outlet one.

Masonry cisterns into which iron receptacles for the wash-house water can be placed, have been made instead, experience having proved in the Artillery lines that this method results in greater cleanliness. Cost of masonry cisterns, Rs. 195 ; cost of outlet drain, Rs. 115.

NUSSEERABAD.

The Executive Engineer, Nusseerabad Division, reports that the following sanitary works were carried out during the year 1878 :—

Dismantling Nos. 70, 71, 72, 75, 76, and 79, old bells of arm in European Infantry lines. Estimate, Rs. 385 ; expenditure, Rs. 360.

Dismantling old cook-house, No. 44, used as Public Works store. Estimate, Rs. 82 ; expenditure, Rs. 82.

Repairing and cleaning tanks in garden in European Infantry and Artillery lines. Estimate, Rs. 24 ; expenditure, Rs. 24.

Cleaning and repairing wells in European Infantry and Artillery, and Native Infantry and Cavalry lines. Estimate, Rs. 310; expenditure, Rs. 310.

Cleaning all road drains throughout the cantonment. Partly charged to road repairs and partly done by prison labour.

BELGAUM DISTRICT.

Stations—BELGAUM, DHA'RWA'R, KOLHA'PUR.

BELGAUM.

Major Gambier, R. E., Executive Engineer, Belgaum District, reports that the following sanitary works were undertaken during the year 1878:—

In the old European Infantry lines open masonry drains have been constructed to carry off all waste water from lavatories of barracks, patcheries, and Staff Serjeant's quarter. Paved gutter provided to the barracks and patcheries. Estimated cost, Rs. 2,972; actual cost, Rs. 2,490.

The ventilation of the Southern Marátha Horse, Staff, and R. H. lines have been improved. Estimated cost, Rs. 114; actual cost, Rs. 114.

DHA'RWA'R.

The Acting Executive Engineer, Dhárwár District, reports that no sanitary works were undertaken during the year 1878.

BOMBAY DISTRICT.

Stations—COLA'BA, BOMBAY, THA'NA, DEOLA'LI.

COLA'BA.

Captain W. H. Haydon, R. E., Acting Executive Engineer, Bombay Defences, reports that the following sanitary works were undertaken at Colába during the year 1878:—

Accommodation for British Infantry Barracks and their out-buildings.—One iron water tank, 6′×4′×4′, has been provided in place of the old one removed. Completed. Estimated cost, Rs. 151; actual outlay, Rs. 110.

Renewing iron water tank at No. 68 Family Quarters Infantry Line at Colába.

The wall has been pulled down and removed. Completed. Estimated cost, Rs. 10; actual outlay, Rs. 11.

Removing the wall which separates F and G Wards on the west side of the station hospital at Colába.

Barrack Subsidiary Buildings.—As the latrines used by children inside the school was objectionably situated, it has been closed and a building 8′×8′ for this purpose with a tiled roof has been constructed outside between the wall and back stair case looking west. Completed. Estimated cost, Rs. 199; actual outlay, Rs. 192.

Making certain additions and alterations to the Garrison Military School at Colába.

Iron-barred windows with teak frames have been provided in the west wall. Completed. Estimated cost, Rs. 46; actual outlay, Rs. 45.

Making and fixing barred windows and shutters in the west wall of the tailor's shop, 66th Regiment, at Colába.

The very low cadjan verandah roofs on the monsoon sides have been removed, and instead of them tiled ones have been provided, making the eaves not less than 7′ high from the natural ground. Three additional windows, 3′×4′, on the west of each quarter have also been provided. Completed. Estimated cost, Rs. 1,120; actual outlay, Rs. 1,081.

Quarters for Staff Serjeants of a British regiment at Colába.

A partition wall which separated the two main rooms has been pulled down and removed; the wooden ceiling, wall, and floor properly finished. Completed. Estimated cost, Rs. 35; actual outlay, Rs. 30.

Removing the partition-wall in the bungalow at present used as a Mess-house by the Officers of the 66th Regiment at Middle Colába.

A single stone, 1′×1′, at top with the figures 900 cut upon it has been supplied and fixed. Completed. Estimated cost, Rs. 2; actual outlay, Rs. 2.

Marking out the extension of the Rifle Range at Colába from 800 to 900 yards.

Accommodation for European Artillery Barracks and their out-buildings.—A platform similar to the one on the east side has been erected on the south side. Completed. Estimated cost, Rs. 21; actual outlay, Rs. 19.

Erecting a brick platform in the baths-room of the Garrison Hospital at Colába.

Alteration to certain Arm Racks in the Royal Artillery lines at Colaba.

The Arm racks in No. 1 and half of No. 2 Barracks have been altered so as to adapt them to the Martini-Henry Rifle. Completed. Estimated cost, Rs. 21; actual outlay, Rs. 20.

Renewing 6 iron tanks for storing Vehar water for the Barracks at Colaba.

Out of the 30 iron tanks sent to the Dockyard from the Royal Artillery and Infantry lines during the fitting out of the Expeditionary Force to Malta, six were found unserviceable; new tanks in their places have been supplied. Completed. Estimated cost, Rs. 556; actual outlay, Rs. 542.

Converting one of the servants' out-houses attached to the quarters 60 61 for Staff Serjeants, Royal Artillery, into a cook-house.

Barrack Subsidiary Buildings.—A masonry platform with fire-places has been constructed, and an iron receptacle with waste-water pipe have been provided. Completed. Estimated cost, Rs. 25; actual outlay, Rs. 24.

Making certain alterations to the Royal Artillery Mess at Colába.

The end of three rooms, viz., 1′ × 11′ × 10′, 1′ × 10′ × 7½′, 1′ × 20′ × 18′, of the west wing of the Officers' Mess have been thrown into one by removing their partition walls, with the view of making this room into one for a billiard room. A teakwood trap of 20 feet span in place of one of the partitions removed, has been provided for supporting part of the roof. Completed. Estimated cost, Rs. 101; actual outlay, Rs. 101.

Reconstructing the Depôt Barracks and auxiliary buildings at Colaba.

Sanitarium Buildings : Barracks and their out-buildings.—The old barracks, patcherries, orderly rooms, cells, &c., have been pulled down and removed in order to construct the following new buildings :—

A single men's barrack for 44 men, a wash-house, latrine, cart-shed, sweepers' shed and urinary for the above with covered passages.

A Patcherry for Seven Families.—A cook-house and two latrines for seven families with covered passages.

A canteen, liquor store-rooms, &c., have been added to the old patcherry. The construction is of a semi-permanent nature, viz., brick-nogging walls and roofs supported on teak posts, same as in the Royal Artillery barracks lately completed. Completed. Estimated cost, Rs. 54,569; actual outlay, Rs. 53,043.

Punkahs for Orderly-room of the Colaba Depôt.

Barrack Subsidiary Buildings.—Three punkahs have been provided for. Completed. Estimated cost, Rs. 32; actual outlay, Rs. 30.

Making certain alterations to a door to one of the servants' rooms attached to the Government quarters occupied by the Commandant Colába Depôt at Colába.

The jowli jham erected over one of the doors to the servants' rooms and which opened into the barrack has been removed, and the lower part of the door built up, the upper part having been converted into a window to admit light into the servants' rooms. Completed. Estimated cost, Rs. 14; actual outlay, Rs. 14.

Making certain alterations to the Soldiers' cook-house at the Colába Depôt.

Two of the windows on the eastern side have been raised higher than the smoke hood, so as to admit of the smoke being drawn through the chimney. Completed. Estimated cost, Rs. 14; actual outlay, Rs. 14.

Providing a window in the southern end of the cook-house of the Colábá Depôt.

A teak window, 6′ × 2½′, with wooden bars has been provided in the southern end of the cook-house. Completed. Estimated cost, Rs. 22; actual outlay, Rs. 22.

Providing and fixing four glazed windows to the bungalow, No. 14, occupied by the Commandant Colaba Depôt.

Miscellaneous.—Four glazed windows, each 3½′ × 4½′, have been provided. Completed. Estimated cost, Rs. 44; actual outlay, Rs. 44.

Making compartments in the eastern portion of the Ladies' room of the Troop-shed at the Carnac Bandar.

Compartments in the eastern portion of the Ladies' room of the troop-shed have been made. Completed. Estimated cost, Rs. 195; actual outlay, Rs. 194.

Making wooden paling gates and swinging table for the Troop-shed at Carnac Bandar.

Certain work done to the gas fittings at the Carnac Bandar Troop-shed.

These, as also the above mentioned work, have been executed by the Port Trust Executive Engineer. Completed. Estimated cost, Rs. 114; actual outlay, Rs. 115.

Renewing the date matting in nine of the rooms in the Officers' Sanitarium at Colába.

Date matting has been removed. Completed. Estimated cost, Rs. 31; actual outlay, Rs. 30.

Ground for the accommodation of infectious cases arriving by troopship at Colába.

A piece of ground, 90′ × 36′, on the foreshore south of the hospital and in rear of Morley Hall, as also a piece forming a foot-path, 3 feet wide and 450 feet long, from the hospital, with a view to tents being pitched there, have been levelled. Completed. Estimated cost, Rs. 101; actual outlay, Rs. 96.

Partition in the latrines used by natives at Colába.

Wooden partitions have been provided in the latrines. Completed. Estimated cost, Rs. 100; actual outlay, Rs. 99.

Covering two Wells at Colába.

The two wells, viz., one, 13 feet diameter, near the old Magazine, outside the wall, surrounding the Officers' Sanitarium, and the other, 11½ feet diameter, behind the Canteen, have been covered with corrugated iron sheets (20 B. W. G.) on teak joists. Completed. Estimated cost, Rs. 239; actual outlay, Rs. 228.

Closing up a gully at the back of the cook-house of the married officers' sanitarium and palisading the same with spikes on the top at both ends.

The gully at the back of the cook-house has been closed up by providing teakwood palings, as required by the Commanding Officer of the Depôt Barracks. Completed. Estimated cost, Rs. 22; actual outlay, Rs. 21.

Construction of a drain in front of the Dhobhi's Ghauts situated to the west of the Infantry barracks at Colába.

A V-shaped drain, 100 yards long, has been constructed in order to allow the dirty water from the existing masonry drain to flow rapidly into the sea. The wooden receptacles originally used by the dhobhis have been discontinued, as they were never cleaned by them, and were therefore a great nuisance to the troops. Completed. Estimated cost, Rs. 187; actual outlay, Rs. 187.

BOMBAY.

Mr. Muncherji Cowasji, A.I.C.E., Acting Executive Engineer, Presidency, reports that the following sanitary works were undertaken during the year 1878:—

Fixing waste-water pipes in the Mule Drivers' lines in the Castle stables of the Commissariat Department. Estimated cost, Rs. 1,925; actual cost accounts not closed. There being no drainage in the Castle stables of the Commissariat Department in Barrack [illegible] masonry pits 1′×1′×1′-6″ have been constructed below each stall and a 4″ [illegible]ware pipe provided to receive and carry away the waste, &c., into the municipal [illegible] Flora Road. An iron tank, 6′×6′×5′-6″, supported on teakwood platform, has [illegible]vided at one corner of the stables with supply and service pipes to flush the drains. [illegible] are glazed pipes have also been provided to carry the waste water from the bath-[illegible]s in the Mule Drivers' lines to the municipal sewer.

Constructing a latrine for the use of the Officers of the Staff of the Brigadier-General Commanding the Bombay District. Estimated cost, Rs. 713; actual cost, Rs. 690.

Constructing a new servants' latrine in the compound of bungalow No. 4 in the Marine Lines. Estimated cost, Rs. 135; actual cost, Rs. 105.

Providing drainage in the quarters occupied by the Warrant Officers of the Ordnance Department near the Crawford Market. Estimated cost, Rs. 1,149; actual outlay, Rs. 882.

Constructing a drain from the Boatswain's quarters in H. M.'s Dockyard to the New Sailors' Home drain. Estimated cost, Rs. 196; actual outlay, Rs. 189.

Making additions and alterations to the latrine attached to the Town Barracks occupied by the Commissariat Department. Estimated cost, Rs. 383; actual cost, Rs. 300.

Filling in the well close to (on the west side of) the Cooperage. Estimated cost Rs. 120; actual cost, Rs. 87.

Putting an undressed stone-pavement round the well in the compound of the hospital of H. M.'s 22nd Regiment N. I. in the Marine Lines. Estimated cost, Rs. 61; actual cost, [illegible]

THA'NA.

Major M. J. Macartney, R. E., Executive Engineer, Northern Konkan, reports that no sanitary works were undertaken at this station during the year 1878.

DEVLA'LI.

The Acting Executive Engineer, Northern Division, reports that no sanitary works were undertaken at this station during the year 1878.

SIND DISTRICT.

Stations—KURRACHEE, HYDERABAD, JACOBABAD.

KURRACHEE.

Lieutenant E. C. Spilsbury, R. E., Acting Executive Engineer, Lower and Central Sind, reports that no sanitary works of any kind were undertaken at this station during the year 1878.

HYDERABAD.

The Acting Executive Engineer, Hyderabad District, reports that no sanitary works were carried on during the year 1878.

ADEN.

The Executive Engineer, Aden Division, reports that the following sanitary works were undertaken at Aden during the year 1878 :—

Constructing two cook-rooms for the use of the Native Infantry detachment stationed at Perim outpost. Outlay, Rs. 1,360.

Erecting a new dead-house for the Sanitarium Hospital at Steamer Point. Outlay, Rs. 1,675.

Providing asphalte floors to the rooms and wards and terraced floor to the verandahs of the hospital for the Aden Troop, Khore Muxa. Outlay, Rs. 1,387.

Laying asphalte floors in the wash-houses, European Infantry barracks, Front Bay. Outlay, Rs. 374.

Rebuilding the female ward of the Sanitarium Hospital. Rs. 4,345. This building consists of three rooms of date and matting work on the site of the old building. The main roof is supported by stone pillars, verandah posts set in stone and lime masonry. Each room is 18 feet clear between the pillars and the bath-rooms, two in number : one placed in the corner of the verandah, which is 8 feet wide. The floors of both the rooms and the verandahs are asphalted throughout, and roof of Aden reeds and date matting with five layers of double jowlis.

SECTION V.

SANITARY WORKS (CIVIL.)

SECTION V.

SANITARY WORKS (CIVIL).

THE following Returns show the sanitary works performed in each Collectorate of the Bombay Presidency during the year 1878 :—

Statements showing the sanitary improvements carried out by Municipalities in the several Collectorates during the year 1878.

KHA'NDESH.

Name of Municipality, Town or City.	Population.	Drinking Water Supply: Number of Wells with steps.	Drinking Water Supply: Number of Wells without steps.	Drinking Water Supply: Tank.	Income during the year.	Expenditure during the year.	Balance on last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of sanitary requirements most urgently needed.	List of sanitary improvements during the year.
Jalgaon	8,577	1	201	1	Rs. 12,844 3 5	Rs. 8,633 9 2	Rs. 5,631 1 9	Rs. 2,922 8 6	109	242	Water supply. Drainage	A full supply of pure water has been secured by the construction of a new tank at Mehrun costing upwards of Rs. 75,000. New drains have been constructed and steps taken to flush the main drain of the town from cisterns.
Chopda	13,629	21	218	2	3,309 8 9	3,074 3 10	1,643 10 8	1,636 8 2	173	362	Underground drainage. Well repairs	Plan and estimate for underground drainage throughout the town has been sanctioned and the work will be finished by the end of the official year. Some wells have been repaired and steps will be taken to repair any new wells to which repairs may be found necessary.
Dhulia	12,392	..	12	..	18,327 7 0	20,587 10 3	14,713 15 8	4,568 15 3	141	346	Dispensary. Meat market. Drainage. Water supply	Opening out new road. Several privies built. Slaughter-house in progress. Huts cleared and roads widened.
Songir	4,428	4	2	..	2,065 9 9	2,522 5 1	1,121 0 3	608 13 3	38	179	New well	Well repaired.
Amalner	8,432	..	4	..	2,487 0 7	2,498 15 3	596 14 4	637 13 0	33	172	Dispensary. Deepening nullah to the west of the town	Drains and dust-bins made.
Párola	12,235	7	73	4	5,153 5 9	6,398 1 8	316 5 1	836 0 0	202	433	Drainage	Water brought into the town to fill the fort ditch which keep the wells full by percolation.
Erandol	11,170	5	24	..	5,524 5 8	4,409 1 5	1,487 3 6	1,345 4 11	47	287	Improving drainage	None.
Dharangaon	10,729	5	11	..	6,137 2 11	8,841 10 5	2,295 8 6	1,280 13 9	48	359	New dust-bins	None.
Bhadgaon	6,153	..	..	..	2,923 4 6	1,545 2 1	1,772 15 9	454 0 0	56	129	Drainage still to be completed. New dispensary. Otas in the market place.	Some progress in building the drainage. A few wells cleaned out and repaired. General conservancy.
Máheji	2,151	..	2	..	1,213 8 0	1,540 4 2	770 1 1	418 14 3	..	..	....	A temporary dispensary was established.
Sindkheda	4,368	5	100	..	1,298 1 3	1,347 5 8	324 11 6	392 6 1	18	110	....	Road repairs. Water supply.
Betávad	3,015	3	95	..	875 1 6	779 4 4	247 9 4	258 5 1	50	173	....	Road repairs. Water supply.
Shirpur	5,859	2	1	..	3,731 1 11	3,306 14 7	2,309 8 9	904 6 4	211	312	....	Road repairs.
Nandurbár	6,971	13	31	1	3,266 7 9	3,405 7 5	1,164 6 0	1,864 1 1	98	223	Conservancy. Water supply	Small works for surface drainage. Contribution to dispensary.
Shahada	5,195	1	64	..	2,696 2 6	1,929 15 0	2,334 3 2	1,050 12 3	130	119	Conservancy. Dispensary	None of a permanent character.
Prakásha	3,787	..	42	..	1,433 5 11	1,505 12 1	1,124 1 0	700 4 3	106	226	Conservancy	Do. do.
Taloda	4,702	4	115	1	2,452 5 6	1,736 11 3	715 10 3	718 15 6	34	213	Conservancy. Dispensary	Small works for surface drainage.
Total ..	123,663	71	995	9	75,738 2 8	69,062 5 8	38,568 14 7	20,598 12 8	1,494	3,885		

Sanitary Improvements carried out by Local Funds.

Dhulia												
Amalner												
Erandol	..	..	..	..	..	..	..	..	..	...	....	No sanitary works properly so called were carried out.
Páchora												
Chálisgaon												
Pimpalner	53,656	125	856	21	4,681 4 1	1,369 13 1	3,311 7 0	1,369 13 1	915	780	Dispensary	Five wells. Roadside trees.
Nandurbár	45,285	225	505	38	7,561 8 3	3,681 8 11	3,879 15 4	2,916 13 4	819	1,456	Water supply of Nandurbár town	Four wells. Roadside trees. Contribution to dispensary.
Taloda	33,392	35	195	3	3,312 13 10	1,831 1 10	1,481 2 0	1,387 14 10	410	960	Dispensary	Six wells. Roadside trees.
Shahada	41,114	76	530	7	10,438 13 4	4,800 5 6	5,638 7 10	3,502 7 8	1,219	1,596	Dispensary	Ten wells. Roadside trees.
Virdel	64,117	10	693	4	16,425 0 0	16,425 0 0	1,292 0 0	13,700 0 0	1,176	1,208	....	Three wells. Grants-in-aid to the dispensary.
Shirpur	34,988	5	237	..	2,573 0 0	2,573 0 0	121 0 0	840 0 0	889	979	....	Ten wells. One tank.
Choppa												
Sauda												
Bhusával	..	..	..	..	..	..	..	..	..	..	....	No sanitary works properly so called were carried out.
Nasirabad												
Jámner												
Total ..	272,552	476	3,016	73	44,992 7 6	30,680 13 4	15,724 0 2	23,717 0 11	5,428	6,979		

Násik Town Municipality.	22,436	16	823	..	36,329 0 0	33,770 0 0	2,559 0 0	19,239 0 0	371	1,761	Water supply from the river. Drainage to be carried to a point below the town and meat market.	Drain-cleaning channel of the Godavery deepened during the hot weather and public wells cleaned.
Igatpuri do. do..	5,247	1	14	2	3,736 0 0	2,893 0 0	843 0 0	1,503 0 0	91	149	A slaughter-house; a fish market; latrines on the earth system; roads through swampy places; extension of the water supply within and out of the municipal limits.	A meat market. A new latrine was built and another commenced.
Sinnar do. do..	10,153	16	168	5	2,356 0 0	1,212 0 0	1,144 0 0	369 0 0	167	136	A supply of latrines on the earth system	Dust bins; repairs to roads and drains; a well completed and another improved. Improvement of the water-supply in the river.
Trimbak do. do..	3,763	20	1	10	2,394 0 0	1,855 0 0	539 0 0	299 0 0	106	156	Public latrines; filling in certain hollows where rain collects and vegetation is very rank.	Repairs to steps of the tank mostly used for drinking purposes; a dam to turn some fresh water into that tank; repairs to tank used by cattle. A new road with paving and gutters.
Yeola do. do..	17,461	1	6	1	6,506 8 4	7,864 10 5	1,447 2 7	2,738 6 11	478	985	....	Some temporary latrines have been built for the convenience of the townspeople.
Málegaon do. do..	9,701	2	90	..	7,434 6 11	9,324 14 1	....	7,439 11 6	169	595	Drainage (impossible owing to excessive cost)	1. Protection of the river water during the hot season. 2. Keeping the roads and side gutters clean. 3. Watering roads in the hot season. 4. Four pieces of land have been taken up, east, north, and south of the town, for purposes of nature.
Total ..	68,761	56	1,102	18	58,755 15 3	56,919 8 6	6,532 2 7	31,588 2 5	1,382	3,782		

Sanitary Works carried out by Local Funds, Civil Agency:—

	Amount.			Total.		
	Rs.	a.	p.	Rs.	a.	p.
1. *Táluka Dindori—*						
The following wells were repaired—						
Well at Khedgaon	75	0	0			
Do. at Shedwad	10	0	0			
Do. at Pade	5	0	0			
Do. at Umrale	10	0	0			
Do. at Sonjamb	10	0	0			
Do. at Bapgaum	5	0	0			
Do. at Akrale	15	0	0			
Do. at Sangamner	9	0	0			
Wells at Dindori	39	8	0			
				178	8	0
2. *Táluka Chandwad—*						
Well at Wadhre	16	0	0			
Do. at Gopul	10	0	0			
Do. at Katarwadi	10	0	0			
Do. at Ekrukhe	10	0	0			
Do. at Nadurtek	15	0	0			
Do. at Indraiwadi	15	0	0			
Do. at Jambulke	20	0	0			
Do. at Sutarkhed	10	0	0			
Do. at Rojderwadi	10	0	0			
				116	0	0
3. *Táluka Niphád—*						
Well at Khangaon	101	0	0			
Do. at Thetale	90	0	0			
Do. at Daochiwadi	50	0	0			
				241	0	0
4. *Táluka Yeola—*						
Well at Thangaon	40	0	0			
Do. at Angangaon	22	0	0			
				62	0	0
5. *Táluka Násik—*						
Well at Wasali	164	0	0			
Do. at Adgaon	200	0	0			
Do. at Kalmuste	37	0	0			
Do. at Harshwadi	22	0	0			
Do. at Shirasgaon	15	0	0			
Do. at Umbraone	17	8	0			
				455	8	0
6. *Táluka Sinár—*						
New well at Nimgaon	750	3	1			
Do. at Sayale	125	0	0			
Repairs to well at Dodikhurd ..	160	0	0			
				1,035	3	1
7. *Táluka Igatpuri—*						
Repairs to well at Padali	33	0	0			
Do. do. at Wadewarah ..	104	1	1			
Do. do. at Titole	100	0	0			
				237	1	1
Total ..	....			2,335	4	2

No sanitary improvements were carried out from Local Funds in the rest of the táluka.

AHMEDNAGAR.

Name of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on the last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of sanitary requirements most urgently needed.	List of sanitary improvements during the year.
Ahmednagar City Municipality.	32,841	None.	None.	73 Cisterns with 16 water pillars in the city which are fed by fire aqueducts.	Rs. a. p. 44,738 9 2 exclusive of balance.	Rs. a. p. 44,208 1 10	Rs. a. p. 4,109 6 9	Rs. a. p. 23,006 2 3	318	1,086	No. Name of Work. 1 Increasing the supply of pure drinking water by constructing a tank near Buran Nagar. 2 Main drainage scheme for the city. 3 Constructing public latrines in and outside the city.	No. Name of Work. 1 Completing the Warulwadi aqueduct by clearing out the silt and covering dirt. 2 Removing a part of the silt from the Warulwadi tank. 3 Sinking and building a well for supplying water to the Wadgaum aqueduct near Bhestbay. 4 Completing the work of the water pillar near the Mutton Market. 5 Cutting tunnels at the source of the Kapurvdi aqueduct. 6 Erecting a water pillar for the Bhunghis near Da Mandvee. 7 Surveying the Kapurwadi tank project near Beran Nagar.
Sangamner Town Municipality.	9,030	2 The Prawdrunk all	1 water ara ri k by a the pe	None. of the ver is lmost ople.	3,854 0 0	3,782 0 0	506 0 0	1,268 0 0	239	363	Drains and gutters	1. New latrines .. .. Rs. 630 0 0 2. New drains .. .. „ 21 0 0 3. Road repairs .. .. „ 272 0 0 Rs. 923 0 0
Bingar do. do...	4,864	15	2	None.	* 4,997 2 4	5,880 15 9	1,200 2	1,467 10 10	69	179	New gutters, as the old gutters being covered over, are filled with accumulation of filth. A new latrine, as those at present existing do not suffice.	A new cart has been retained for carrying away refuse. The roads of the town were cleaned and repaired.
Total ..	46,735	18	3	7	53,589 11 6	53,871 1 7	5,815 8 9	25,741 13 1	626	1,628		

Sanitary Works executed out of Local Funds.

No.	Name of Work.	Amount of expenditure from 1st January 1878 to 31st December 1878.
	Táluka Shevgaon.	Rs. a. p.
1	Deepening a well at Hatral..	25 0 0
	Táluka Nevása.	
2	A new well at Moria Chinchora	330 0 0
3	Completing the well at Wátápur	50 0 0
4	Pavement to a well at Miri	50 0 0
5	Repairs to the well at Jámasvádi	80 0 0
	Táluka Kopargaon.	
6	A water trough at Khopdi..	259 8 0
7	Repairs to the well in the island of Kopargaon	451 0 0
	Táluka Sangamner.	
8	Building a wall round a well on the banks of the Mélungi river.	30 0 0
9	Repairs to the well on the Korhaghát	307 0 0
	Táluka Akola.	
10	Blocking the water-course of the drain at BBrahmanváda.	4 14 0
11	Building a small stone bandhara at Sávargaon .	204 0 0
12	Repairs to a reservoir at Rajur	30 0 0
	Total ..	1,821 6 0

* The balance at the beginning of the year has not been included in the income of the year.

POONA.

Poona City Municipality.	90,436	1	69	1	1,59,719 0 0	1,37,051 0 0	22,668 0 0	35,896 0 0	*519	3,575	1. Meat market 2. Large vegetable market. 3. Small do. 4. Additional public latrines. 5. Complete drainage of city. 6. Removal of burial grounds out of the city. 7. Extension of water-supply.	1. Meat market 2. Sets of public latrines Extension of water-supply	Rs. 1,188 No payments were made during 1878. 6,869
Jejuri Town Municipality	3,102	..	4	1	2,591 1 4	2,327 10 9	263 6 7	336 0 0	50	107	None	Repairs to tank Do. to aqueduct Temporary dam in the river	153 40 34
Sásvad do.	6,416	1	..	..	2,078 2 2	1,802 1 2	276 1 0	358 7 9	85	152	Water supply	Additions to the Dharamshala	..
Bárámati do.	4,975	6	30	..	7,139 8 4	3,042 10 10	4,096 13 6	370 0 0	106	312	Ditto.	Repairs to the Jalochi "Wes"	..
												Repairs to roads	..
												New dust bins and repairing old ones	..
Talegaon (Dábháda.)	5,040	1	3	1	2,089 1 6	1,853 2 0	235 15 6	544 1 9	55	122	Ditto	Clearing roads	..
												Repairing latrines	..
												Planting trees	..
Talegaon (Dhamdhera.)	4,428	2	41	..	1,368 12 1	1,265 13 11	102 14 2	123 5 5	62	137	Ditto	Repairing roads and other improvements	..
A'landi do.	1,624	3	10	..	4,425 0 9	2,393 8 10	2,031 7 11	293 2 8	51	145	Dharmshalla latrines	Do. and constructing new roads	336
Khed do.	6,446	6	14	..	1,413 10 3	1,128 5 11	285 4 4	296 0 0	88	225	Improved conservancy	Do. roads	260
												Do. a well	58
Junnar do.	10,298	6	254	2	4,638 8 6	4,119 6 5	519 2 1	2,948 0 8	187	180	Water supply	Do. roads and aqueduct	162
Indápur do.	7,740	6	176	1	2,096 12 4	1,947 1 2	149 11 2	242 3 8	37	253	Improved conservancy arrangements	Constructing and repairing roads	126
Sirúr do.	5,049	1	4	..	4,796 5 7	3,519 1 11	1,277 3 8	935 4 3	6	92	....	Reparing roads, &c.	..
Lonávla do.	1,914	..	13	2	893 12 0	542 13 3	349 14 9	16 2 9	30	88	....	New roads and other miscellaneous improvements	..
Poona District, exclusive of Municipal towns.	759,767	3,175	15,386	303	†83,851 6 8	65,611 7 10	18,239 14 10	....	10,434	24,219	1. Water supply 2. Roadside trees. 3. Extirpating prickly-pear.	13 wells Four dharamshalas Two tanks Planting roadside trees Cutting prickly-pear Repairing wells Other works	2,144 2,048 70 6 73 4,705 56,565
Total ..	907,235	3,208	16,001	311	2,77,101 1 6	2,26,605 3 3	50,495 13 6	42,358 12 6	11,740	29,607		Total ..	74,837

* The arrangements for the registration of births being imperfect, this figure cannot be relied upon.
† District Public Works Fund.

SHOLA'PUR.

Sholápur City Municipality.	53,403	4	10	2	53,873 15 5	58,065 3 10	8,825 6 1	16,994 9 1	593	4,494	1. To remove the Sadar Bázár slaughter house to a suitable place. 2. Manufacture of obnoxious articles to be removed outside the town. 3. To provide a suitable place for preparing manure. 4. Water-supply and drainage for the town. 5. Construction of meat markets. 6. To provide burial grounds for the Mahomedans and Banias.	1. Construction of latrines for the Sadar Bázár people. 2. Introduction of the system of halalcore cess.
Bársi Town Municipality.	18,560	13	23	3	13,896 8 4	13,439 13 4	1,467 13 2	1,976 14 11	207	1,070	To introduce the system of halalcore cess.	
Mádha do.	5,254	9	18	..	1,096 12 5	1,105 1 4	21 16 0	191 13 10	50	166	Establishment of a dispensary.	
Karmála do.	6,759	9	3	2	4,089 6 7	3,414 6 6	1,480 13 4	765 3 3	50	123	1. Construction of latrines for the public. 2. Drainage for the town.	
Pandharpur do.	16,275	18	22	2	43,987 6 5	47,900 2 8	13,900 15 5	8,321 4 9	114	1,371	To remove the present burial ground.	
Akluj do.	4,889	27	39	1	1,558 1 11	793 5 1	764 12 10	125 13 6	54	260	....	
Sangola do.	5,111	14	7	1	1,302 4 6	1,803 10 0	729 2 6	362 13 0	52	224	....	
Náteputa do.	2,729	6	1	2	1,005 2 1	1,498 7 8	405 5 7	109 5 4	38	192	....	
Total ..	112,980	100	123	13	1,20,800 9 8	1,28,020 2 5	27,595 14 11	28,847 13 8	1,158	7,900		

SA'TA'RA.

Name of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of sanitary improvements most urgently needed.	List of sanitary improvements during the year.
By Municipalities.					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Sátára	24,564	20	407	11	28,373 6 3	30,318 7 3	492 13 1	12,634 0 2	664	1,377	1. Water supply to the town .. .. 2. Building drains. 3. Erecting latrines. 4. Constructing urinaries.	1. Road repairs. 2. Repairs to nullahs. 3. Constructing filth pits. 4. Repairs to culverts and drains. 5. Repairs to latrines. 6. Constructing a road to the Gandamal night soil pits.
Wái	10,299	9	723	..	8,307 13 5	6,953 0 2	1,354 13 3	1,777 10 4	633	605	1. Filtering water of the Krishna .. .. .. 2. Sweepers for sweeping roads.	1. Filtering water of the Krishna. 2. Repairs to roads.
Rahimatpur	6,278	..	..	..	1,343 8 0	1,286 5 9	690 10 10	442 0 0	128	319	1. Building public latrines .. .. .. 2. Making filth pits.	1. Repairs to Municipal buildings. 2. Clearing out pools in the beds of the nullah.
Karad	16,343	No wells but "howds" in different parts of the town.		..	7,099 0 5	4,232 11 10	2,866 4 7	1,283 0 6	127	389	1. Public latrines .. .. 2. Carts for removing rubbish and night soil.	2. Public latrines.
Vita	3,552	4	1	..	411 4 8	283 15 0	127 5 8	140 11 6	63	150	1. Water supply .. .. 2. Dispensary.	.....
Tásgaon	10,528	80	234	2	8,732 3 4	3,608 12 8	89 15 9	530 3 7	119	258	1. Market for butchers .. .. 2. A set of public privies. 3. Drainage in certain parts of the town. 4. Receptacles for rubbish outside the town. 5. Removal of the potters' kilns from the town. 6. Closing the privies with pits wherein night soil is allowed to accumulate.	1. Petty repairs to the public wells. 2. Do. to the dharamshalas.
Islámpur	8,390	Numerous wells.		3	3,447 10 0	2,802 13 9	644 12 3	327 14 2	193	199	1. Distribution of the Islámpur tank water in the town by pipes. 2. Road repairs. 3. Planting trees in the town. 4. Repairs to the dharamshala of Emai.	1. Petty repairs to gutters.
Ashta	9,196	14	13	..	675 3 5	520 8 6	176 9 8	251 12 10	146	276	1. Dispensary	None.
Mhasvad	5,476	5	1	1	2,047 13 7	1,485 8 10	2,072 11 6	774 1 5	93	237	1. A "Hel" .. .. 2. Roads.	None of importance.
Shingnápur	1,457	9	3	2	1,506 9 8	1,846 9 1	2,661 3 4	228 0 6	16	43	1. Dharamshala .. .. 2 Tree-planting. 3. Wells. 4. Clearing the tanks.	None of importance.
Pusesávli	2,444	3	17	..	1,388 0 2	1,374 3 8	13 12 6	643 8 9	27	68	1. Privies	1. Trench latrines. 2. Clearing "hels."
Máyni	2,811	2	56	1	426 14 6	451 11 2	285 7 8	265 7 5	16	157	1. Repairs to roads .. .. 2. Do. to dharamshala. 3. Sweepers. 4. Dispensary.	None of importance.
Malcolmpeth ..	1,281	2	44	2	17,032 4 6	18,141 4 9	1,925 9 0	672 5 5	13	35	General sanitation	None of importance.
By Local Funds.												
None of importance	..	..	..	..	....	....	....	....	..	..	.....	.....
Total ..	96,559	144	1,499	22	75,791 11 11	73,306 0 5	13,401 8 1	19,970 12 7	2,238	4,163		

BELGAUM.

Belgaum Town Municipality.		22,234	1	10	2	34,872 0 0	29,019 0 4	5,653 4 5 * Many of dysentery, the effects vious year	10,489 5 0 these deaths and diarrhœa of the famine	395 from caused of the	1,435* fever, from pre-	The closing of all the "pco" or tank privies and constructing new seat privies is of first importance. This measure was stayed owing to the famine, but the notices have since been issued and objections received from the inhabitants, and this will be reported upon by the Collector and President of the Municipality. 2. Constructing more dust bins and public blocks of privies.	Some more pit privies have been closed and the number of seat privies have increased from 184 to 382 under the supervision of the Municipality. The number of Bhanghis have been increased to 8 and two night soil carts employed, besides the four carts employed under Bhanghis who have taken the contract. Four more dust bins have been constructed. All the wells afforded drinking water have been cleaned out from time to time. All closed gutters and drains have been opened and cleansed, and all open gutters also cleaned.
Saundatti	do.	7,426	2	11	...	2,261 0 0	2,177 0 0	730 0 0	679 0 0	36	463	1. Construction of latrines .. .. 2. Removal of prickly pear.	None.
Gokák	do.	9,289	9	26	One river.	4,732 13 9 *	4,209 4 11	1,565 2 10	2,205 14 1	84	524	Turning the flow of the river waters along the south bank under the different ghâts so that the people may have an ample supply of water in summer. 2. Building some more latrines in the town as well as in the Aitwar peit.	Improving the roads.
Yamkanmardi	do.	5,296	3	17	1	975 12 2	897 2 11	78 12 3	288 0 0	92	272	Removal of prickly pear.	
Nipáni	do.	8,854	5	6	3	12,835 11 7	3,994 6 4	8,833 5 3	1,521 14 1	184	604	1. Repairs to the water pipes of Shirgupi tank .. .. .. 2. Repairs to the roads in the town. 3. Removal of prickly pear within municipal limits. 4. Opening a new dispensary. 5. Do. privies.	1. Removal of prickly pear. 2. Digging out earth in the tank. 3. Repairs to the water pipes and wells, &c.
Athni	do.	11,067	46	65	2	11,638 2 3	9,318 2 8	2,319 15 7	1,978 9 1	240	447	1. Building public latrines in different parts of the town. The sum of Rs. 1000 is provided in the Budget for 1879-80, as the income of the Municipality is too small to complete the whole work at once. 2. It has been proposed by the Committee and passed by the President that notices should be issued to the owners of houses to provide themselves with their own privies whenever it may be found practicable to do so.	1. Filling up the old ditch which lies between the town and the peit with the street sweepings in order to prevent injury being done to the public on account of the foul water accumulated in it during the rains. 2. Repairs to wels, &c. .. .. Rs. 92 12 1 3. Iron dust bins .. .. „ 97 5 3 4. Digging trenches for temporary latrines .. „ 11 1 0 5. McDougall's disinfecting powder .. .. „ 32 13 0 Total .. 233 15 4
Total ..		64,116	66	135	8	35,900 7 9	49,613 1 2	19,180 8 4	17,162 10 3	1,031	3,745		

By Local Funds.

No.	Name of Work.	Total expenditure on the works.	Remarks.
	Repairs.	Rs. a. p.	
1	Nagzari wells, Belgaum ..	860 0 0	
	Total.. Rs.	860 0 0	

DHA'RWA'R.

Ránibennur Town Municipality.		11,623	2	...	1	*6,037 11 1	3,923 3 11	2,114 7 2	780 8 8	56	283	1. Road in front of Banshenkari's temple at Kurbgeri .. .. 2. Repairs to Malsheti tank embankment. 3. Road near Shrinivasachary's house in the fort. 4. Constructing steps to Havaldar hond. 5. Road near Hugu Chenapa's house at Kurabgeri.	1. Outlet and kalava to Jingar hond.
Navalgund	do. ..	6,304	...	1	2	4,212 2 6	3,801 14 11½	910 3 6½	809 8 0	44	313	1. Removing dirt from the town .. .. 2. Constructing a dispensary. 3. Lighting the town. 4. Repairs to gutters in the town. 5. Repairing Neelawa's tank.	1. Removing dirt from the town. 2. Lighting the town. 3. Constructing a well near the Táluka Kutcherry.
Nargund	do. ..	9,931	1	15	12	4,879 13 2	5,369 4 10	....	801 8 4	28	413	....	Removing dirt from the town.
Hubli	do. ..	37,961	3	851	12	30,777 5 10	22,880 14 7	8,738 15 6	7,766 0 11	264	1,468	More latrines and better drainage.	
Gadag	do. ..	7,780	5	25	1	19,674 11 1	25,468 0 0	2,675 0 8	1,450 14 3	70	503	Latrines.	
Bettigeri	do. ..	5,827	8	15	0								
Total ..		79,426	19	893	28	65,581 11 8	60,383 6 3½	14,438 10 10½	11,608 7 9	462	2,980		

Name of Work.	Amount.
	Rs. a. p.
Drains and culverts	1,875 15 0
Cholera shed	23 0 1
Dust bins	72 13 3
Latrines	142 4 3
Total ..	2,114 0 7
Drains and culverts	1,595 1 1
Chapper for cholera patients	25 8 3
Dust bins	47 4 4
Total ..	1,667 13 8

* This includes balance at the end of the last year.

Name of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of sanitary requirements most urgently needed.	List of sanitary improvements during the year.
KALA'DGI.												
					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Bijápur	13,589	23	30	..	2,654 4 3	2,595 1 9	59 2 6	704 6 3	21	363	Stronger scavenging establishment	Scavenging and lighting.
Bágalkot	14,055	12	113	2	14,819 11 10½	12,410 5 6¾	2,409 6 10	1,608 1 4	52	490	Ditto	Do. do.
Kaládgi	5,291	7	46	1	3,339 9 10½	2,797 2 8½	542 7 2	2,136 7 5½	23	280	Ditto and repairs to drains	Do. do. and repairs to wells, drains and latrines
Ilkal	6,826	4	73	..	14,925 0 9	7,437 9 11	7,487 6 10	1,632 1 11	55	454	Constructing drains	Scavenging. Purchase of ground for necessary purposes. Constructing bins for street refuse.
Total ..	39,761	45	262	3	35,738 10 9	25,240 3 5	10,498 7 4	6,081 0 11½	151	1,587		
KA'NARA.												
Kárwár Town Municipality.	13,263	1	682	408	13,674 13 0	11,753 14 9	1,920 14 3	3,233 4 0	267	421	Raising and metalling of the main bázár street and of the gullies behind.	1. Construction of a new latrine. 2. Ditto of some new drains. 3. Improvement of water supply.
Sirsi do. ..	5,285	31	581	7	12,551 9 2	7,233 7 6	5,318 1 8	1,416 12 6	53	301	Public latrines and improvement of the town roads	1. Cleansing of wells and tanks. 2. Improved drainage of the bázár, and repairing streets.
Haliyal do. ..	5,071	18	24	5	7,394 9 9	6,345 13 4	1,048 12 5	2,806 14 1	71	212	Public latrines	1. Improvement of water supply. 2. Repairs of roads and cleansing, &c.
Kumpta do. ..	10,932	..	785	25	18,512 3 5	14,143 10 3	4,368 9 2	917 10 4	232	371	Improvement of conservancy arrangements	Construction of drains, &c.
Gokarn do. ..	3,976	312	271	21	2,135 10 9	1,925 0 5	210 10 4	236 3 0	83	144	Ditto ditto	Cleaning of roads and of the drainage.
Total ..	38,527	362	2,343	466	54,268 14 1	41,401 14 3	12,866 15 10	8,610 11 11	706	1,449		

Sanitary Improvements carried out from Local Funds.

Kárwár	45,131	4	2,572	1,849	14,116 4 7	10,842 13 10	3,273 6 9	886 10 9	1,029	1,690	Constructing of wells and tanks in many villages. Clearing wells and tanks, &c.
Kumpta	99,042	18	8,815	1,309	20,463 15 1	13,796 14 3	6,667 2 10	189 2 3	1,954	3,397	
Honáwar	82,867	255	3,663	583	8,905 6 5	9,110 9 10	....	355 3 0	1,154	1,810	
Siddápur	34,183	133	1,362	474	7,683 11 6	8,066 4 7	....	476 14 1	579	1,848	
Sirsi	58 099	101	1,964	1,459	8,425 5 10	9,275 15 1	....	28 12 0	871	2,684	
Yellápur	34,298	21	529	972	5,601 14 8	5,493 13 6	108 0 9	1,102 12 0	644	1,799	
Supa	53,786	89	246	450	5,723 5 9	9,819 8 9	....	2,019 2 9	1,221	2,497	
Total ..	398,406	621	1,9151	7,166	70,919 15 5	66,405 0 10	10,048 10 4	4,558 8 10	7,452	15,725	

KA'RWA'R TA'LUKA.

Original Works.

1. Tank at Kinner.
2. Improvement to landing place, Sadashivgar.
3. Well near Bád school.
4. Improvements to tank at Baitkol.
5. Improving a drain at Kárwár.

Repairs.

6. Well at Sezwad.

KUMPTA TA'LUKA.

Original Works.

7. Well at Hebbool.
8. Well near Kirtigade dharmashala.

Repairs.

9. Town roads at Ankola, at Benkikodlo.
10. Water trough at Walgalli.

HONA'WAR TA'LUKA.

Original Works.

11. Improvements to Muttinkere tank at Upponi.

Repairs.

12. Town roads at Honáwar and Bhatkal.

SIDA'PUR TA'LUKA.

Original Works.

13. Tank at Honnegundi.
14. Well near dispensary, Siddápur.

													Repairs. 15. Town roads, Sidápur. SIRSI TA'LUKA. *Original Works.* 16. Sluice to Narur tank at Banwasi. 17. Building Huldwa well. YELLA'PUR TA'LUKA. *Original Works.* 18. Well at Jangeri. 19. Parapet wall to the well at Gunjawati. 20. Well at Oodamaki. 21. Do. at Honshettikop. *Repairs.* 22. Conservancy at Yellápur. 23. Town roads, Mundgod. 24. Mallikarjoon Honda. 25. Well at Jangeri. SUPA TA'LUKA. *Original Works.* 26. Khurd Kanchinhalli Honda. 27. Well at Joida. 28. Tank at Kumbarvada. 29. Honda at Mangalvad. *Repairs.* 30. Well at Sambrani. 31. Clearing jungle near Supa dispensary. 32. Well at Bhagwatti.

RATNA'GIRI.

Report not received.

KOL'ABA.

Alibág .. .	5,108	9	328	2	6,579 1 3	6,557 5 0	1,838 14 8	3,871 9 11	90	205	.....			
Pen	6,514	4	136	8	6,310 1 8	5,517 9 4	792 8 4	2,867 14 6	192	324	1. Removing mud from a tank. 2. Laying pipes in the town for distributing water from the water works.			
Roha Astami ..	5,207	2	50	4	2,861 4 4	2,861 4 4	....	....	91	151	1. Water works for supply of water. 2. Dispensary.			
Mahád	6,631	3	125	9	6,796 7 11	6,075 9 4	720 14 7	2,259 0 3	21	125	1. Privy for use at the dispensary. 2. Separate apartment for women attending the dispensary.			
Total ..	23,460	18	649	23	22,546 15 2	21,011 12 0	3,352 5 7	8,998 8 8	394	805				

THA'NA.

Thána Town Municipality.	14 299	4	278	13	15,210 0 1	18,685 2 11	6,772 3 9	7,486 0 8	132	397	1. Water-supply. .. .. .

Name of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of sanitary requirements most urgently needed.	List of sanitary improvements during the year.
THA'NA—*continued.*												
Bándora Town Municipality.	11,057	..	254	10	Rs. a. p. 13,525 5 9	Rs. a. p. 9,155 14 11	Rs. a. p. 4,369 6 10	Rs. a. p. 1,959 12 0	227	251	1. Drains .. .. 2. Lighting. 3. Public latrines.	None.
Total ..	87,952	48	1,953	86	74,808 10 5	71,772 3 6	21,660 15 9	18,343 11 7	1,066	2,166		

List of sanitary works carried out during the year by Local Funds.

No.	Táluka.	Description of Works.	Cost. Rs. a. p.
1	Salsette ..	Railing to tank at Rye Murdha. ..	588 12 0
		Well at Murol	441 12 9
		Do. at Yeur	589 14 6
		Do. at Paone	612 9 9
2	Panvel ..	Well at Barapada	543 15 2
		Do. at Asoodgam	638 10 0
		Do. at Devlali	900 0 0
		Do. at Posri	272 12 3
		Do. at Pirkone	546 0 0
		Do. at Mohope	447 15 0
		Do. at Waje	652 13 4
		Do. at Giraola	627 3 7
		Do. at Ulwa	373 4 6
		Do. at Tembharem	466 6 9
		Do. at Narpoli	347 4 0
3	Murbar ..	Well at Asala	735 15 11
		Do. at Dehenali	851 4 0
		Do. at Talowli	684 12 7
		Do. at Sarulgam	732 7 6
		Do. at Shiola	800 0 0
4	Kályan ..	Reservoir at Ghotsai	498 1 6
		Excavating tank at Budlapur ..	820 7 6
		Do. at Umrali ..	563 6 6
5	Bhiwundi ..	Well at Umerkhund	692 9 3
6	Bassein ..	Well at Kanher	833 2 0
		Do. at Bhatane	685 13 0
		Do. at Karjane	685 14 3
		Parapet wall to the well at Nahale.	69 6 0
7	Dahanu ..	Well at Dhahar	678 3 10
8	Shahapur ..	Well at Chodrati	558 11 6
			17,939 15 6

SURAT.

Surat City ..	107,149	4	72	..	2,28,775 7 8	2,15,421 10 0	13,353 13 8	73,916 2 2	1,277	2,602	Water supply	Repairs to markets and slaughter-house. Do. Civil Hospital. Do. Parak Dispensary. Do. Public wells. Do. Public Park. Do. Dharamshalla. Fifty new dust bins constructed and repairs to old bins. Repairs to night soil depôt roads and carts. Do. Public latrines. Do. do. roads. Constructing new cylindrical barrels for sprinkling water on road, &c. &c.
Bulsar Town ..	11,315	..	56	6	16,240 4 7	18,516 0 4	726 11 0	1,561 11 2	148	147	....	.... Watering, lighting, cleaning water tanks, conservancy establishment, dispensary establishment. Two wells have been built.

Ránder Town ..	(Annual Census, 9,142; Census for 1872, 10,280) 731	..	8	..	13,261-8-0, besides Rs. 657-4-4 on account of last year's balance.	13,477 14 7	* 440 12 11	10,392 3 3	199	358	1. Provisions for latrines .. .. 2. Widening the streets. 3. Supply of drinking water.	Watering the road from Rander to Hope Bridge. The town is situated on the river Tapti, and the people chiefly use the river water for drinking purposes.
	11,011											
Mándvi Town ..	4,226	1	114	..	5,013 2 4	5,124 13 3	1,494 3 4	678 9 4	75	91	....	Watering, lighting, road-cleaning, and repairs.
Total ..	..	5	250	6	2,63,290 6 7	2,52,540 6 2	16,015 8 11	86,548 9 11	1,699	3,198		

* Rs. 222-8-3 on account of Deposit to be returned are included in the sum of Rs. 440-12-11. Actual balance is Rs. 218-4-8.

Sanitary Improvements carried out from Local Funds.

Surat	4,98,722	70	10,942	1,893	1,50,025 0 0	1,18,590 0 0	31,435 0 0	*12,800 0 0	14,107	11,738	Supply of drinking water	No work of importance in a sanitary point of view was under, taken by the Local Fund Committee, excepting tanks and wells of which those completed during the year cost Rs. 1,1240 as under:— Tanks, 27 .. .. Rs. 7,360 Wells, 35 .. .. „ 3,880 Rs. 11,240

* Vaccination and dispensaries .. .. .. Rs. 8,310
Parabs and Hávádás .. .. .. „ 776
Roadside trees .. .. .. „ 1,244
Watering roads .. .. .. „ 2,470
Rs. 12,800

BROACH.

Broach City Municipality.	36,932	3	29	2	74,988 10 9	71,961 7 6	3,027 3 3	7,478 8 11	653	1,390	Drainage; water-supply for the town; and public latrines ..	None.
Anklesvar Town Municipality.	9,289	4	14	1	19,787 14 8 with balance from previous year, Rs. 6,495-8-5.	15,583 7 5	3,338 7 3 exclusive of deposits, Rs. 866.	1,473 15 0	248	360	None.	None.
Jambusar do. ..	10,898	2	13	1	3,551-6-5 with balance from previous year Rs. 3,928-2-5; total Rs. 7,479-8-10.	6,682 9 9	796 15 1	863 11 8	30	333	Paving of two slopes: 1 slope of Adum Patel, 2 slopes of Malis ..	None.
Total ..	57,119	9	56	4	98,327 15 10	94,227 8 8	7,162 9 7	9,816 3 7	931	2,083		

KAIRA.

By Municipality.

Nadiád Town Municipality.	24,551	112	3	10	16,529 15 6	17,521 6 3	3,795 13 10	833 4 11	588	855	1. Roads .. .. 2. Gutters for watering road. 3. Urinaries.	Metalled and drained road near Nagarwada.
Kaira do. ..	12,681	..	14	..	7,581 0 1	8,404 7 8	1,412 3 3	1,731 11 10	64	86	1. Town wall on river side .. .. 2. Khariat or protecting well at Mohanára	Repairs to drains. Cleaning out wells. Repairs to latrines. Repairs to roads. Repairs to urinaries. Walls to latrines and a portion of the town wall on river side.
Mehmadabad do. ..	7,773	7	6	1	4,149 5 3	3,833 14 2	1,914 15 8	229 8 7	177	178	....	Repairs to bázár road. Repairs to latrines and cleaning out wells.
Dákor do. ..	7,740	1	101	1	8,047 9 1	10,901 7 9	887 10 7	1,341 13 9	152	652	1. Boxes for depositing town sweepings .. .. 2. Repairs to old boxes. 3. Urinaries. 4. Purchase of land for depositing manure and town sweepings.	Repairs to old urinaries. Construction of urinaries. Excavation of trenches round the land set apart for latrines. Roads and gutters for rain water.
Kapadvanj do. ..	14,976	..	140	..	8,036 8 9	8,066 5 10	1,116 9 3	913 8 0	302	522	....	Repairs to roads, hedges round latrines, and three wells. Cleaning out a well.
Total ..	67,721	120	293	12	44,344 6 8	48,727 9 8	9,127 4 7	5,049 15 1	1,283	2,293		

Name of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on the last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of sanitary works most urgently needed.	List of sanitary improvements during the year.
KAIRA—continued.												
By Local Funds.												
Mehmadabad Táluka	65,808	4	7	2	Rs. a. p. 21,353 12 5	Rs. a. p. 20,959 5 3	Rs. a. p. 394 6 11	Rs. a. p. ..	1,897	2,763	....	Tank at Dantowa. Wooden frames to wells. Repairs to táluka wells. Tank and well at Welmati.
Mátar do.	78,673	7	1	4	32,338 10 11	32,338 10 11	..	..	1,997	2,958	....	Tanks at Singiwara, Dawri, Shetra, and Mátar. Planting road-side trees. Railings to wells. Cleaning out wells. Repairs to wells.
Thásra do.	69,321	5	..	2	18,592 12 1	18,592 12 1	..	..	3,391	4,720	....	Construction of wells at Lalnoo, Moowadoo, Mithapura, Dhoonadra and Sangol. Railings to wells. Tank at Buladu. Repairs to embankment to the tank at Thásra.
Kapadvanj do.	74,327	..	5	2	13,507 11 9	13,507 11 9	..	..	1,322	2,958	....	Tanks at Chiklod and Dayab. Railings to well. Planting roadside trees. Repairs to wells. Constructing wells at Rampura near Bhootia.
Nadiád do.	129,474	2	4	5	38,438 0 10	38,438 0 10	..	..	3,474	5,925	....	Tanks at Karnjoda, Keriawi, Finav, Kanjree, and Bhoowell. Repairs to wells. Constructing wells at Choonel, Sodpur, and Dewapura.
Borsad do.	148,417	1	4	8	32,407 14 0	31,638 12 7	769 1 5	..	2,736	5,867	....	Tanks at Danteli, Pandoli, and Gajna. Wells at Veherli, Amlol, Rupiapura, Banejda. Repairs to wells. Railings to wells. Cleaning out wells.
A'nand do.	149,648	1	2	15	31,570 13 5	31,089 7 11	481 5 6	..	2,802	3,569	....	Tanks at Ode, Ajurpura, Kasar, Baroda, Samarkha, Rasnol, Waghosi, Khambholoj, Dholi, Bhoj-Koowa, and Futipur. Repairs to Tanks. Repairs to wells. Constructing wells at Ahmidpur, Scoreli, and Wanskhilia. Railings to wells. Roadside trees. Khaldat to A'nand tank.
Total ..	714,268	17	23	33	4,88,209 11 5	4,86,564 13 4	1,644 13 10	..	15,619	28,760		
PANCH MAHA'LS.												
By Municipalities.												
Godhra Town Municipality	10,641	1	69	1	*5,247 6 7	4,528 3 6	719 3 1	3,179 1 7	67	†732	Drainage and latrines	No sanitary improvements, except improving the tank, were effected during the year.
Dohad do. ..	11,472	..	1	1	*6,229 2 9	5,607 3 8	621 15 1	4,224 1 0	89	†1,238	Ditto	Improving the tank, and building side drains in two streets.
Total ..	22,113	1	70	2	11,476 9 4	10,135 7 2	1,341 2 2	7,393 2 7	156	1,268		
By Local Funds.												
Panch Maháls ..	240,743	145	§1,441	711	‡63,389 7 6	80,777 6 2	17,387 14 7 at debit.	378 0 0	4,809	11,611	Drainage and latrines in kasba towns and large villages, and also wells in certain places.	Four new wells, and improvements and repairs to twelve tanks and seven wells. Expenditure on account of medical relief and vaccination, Rs. 4,136-13-4.

* Includes balances of previous years.
‡ Includes balance of former years.
† The great increase in deaths was attributable to the influx of famine-stricken people from the neighbouring places.
§ Katcha wells included last year are not entered.

AHMEDABAD.

By Municipality.

Ahmedabad	116,873	3	42	*8508	2,15,995 9 8	2,13,072 11 11	44,006 12 5	52,830 11 9	8,493	4,770	Several works are needed, but on account of the lessened receipts of the Municipality, owing to the abolition of certain taxes, the said works must be taken in hand at a future time.	*New Works.* 1. New "thala" to the well at Saraspore. 2. Raising stand-pipe at the Khamásá Chakla. 3. New urinals. *Repairs.* 4. Repairs to Bechardás Dispensary. 5. Ditto to Raipur ditto. 6. Ditto to Kagrapeith Hospital. 7. Ditto to water works building. 8. Ditto to reservoirs and stand-pipes. 9. Ditto to syphons and air shafts. 10. Ditto to public privies and urinals. 11. Ditto to public wells. 12. Ditto to dust bins together with old dust bins.
Dholka	20,854	1	33	3	14,770 14 7	16,805 7 0	833 2 10	679 2 0	97	240	1. Better arrangements for disposing of night soil and rubbish.. 2. New privy.	1. Repairing wells and tanks. 2. New privy built.
Viramgám	19,961	1	12	3	28,500 6 4	25,390 8 10	3,166 9 1	3,468 5 9	102	548	1. More carts for removing night soil	Places for distributing water during the hot weather.
Paránti]	8,341	5	125	4	3,004 6 10	2,676 3 0	1,026 9 9	252 0 0	149	388	1. Proper cleansing of streets .. .. 2. Proper arrangements for privies and night soil. 3. Dust bins and urinals.	1. Medicine. 2. Cleansing privies. 3. Cleansing streets.
Modasa	7,436	7	68	..	1,919 11 9	2,739 14 1	2,712 1 5	524 0 0	72	181	1. Proper cleansing of streets .. .. 2. Dust bins, &c. 3. Urinals. 4. Proper arrangement as to privies and night soil.	1. Cleansing wells. 2. Medicine for cholera, &c. 3. Cleansing privies.
Gogo	9,571	6	29	9	3,054 11 1	2,979 4 8	1,042 0 10	792 2 0	226	350	1. Cleansing tanks .. .. 2. Repairing pipes of the water works.	1. Scavenging roads. 2. Clearing tanks and wells. 3. Repairing pipes of the water works. 4. Contribution to Dispensary. 5. Public privies.
Dhandhuka	9,782	4	28	5	5,418 4 8	5,182 2 2	1,241 0 1	475 10 8	107	718	1. Making a water channel to the Multan tank .. .. .. 2. Making a water channel to the Pirasár tank. 3. Filling drinking trough for cattle. 4. Scavenging roads. 5. Contribution to Dispensary. 6. Vaccination. 7. Watering roads.	1. Scavenging roads. 2. Contribution to Dispensary. 3. Vaccination. 4. Repairing wells and tanks. 5. Filling drinking troughs for cattle.
Total ..	192,818	27	337	8,532	2,72,664 0 11	2,68,846 3 8	54,028 4 5	59,022 0 2	9,246	7,195		

* Subterraneous masonry tanks for the storage of drinking water in the houses.

By Local Funds.

Daskrohi	130,610	..	2	..	29,011 3 6	65,994 13 6	..	..	..	..	....	1. Well and trough at Gaspur. 2. Well at Lambha for Dhers.
Dholka	112,375	..	3	..	20,856 8 5	18,712 14 4	2,143 10 1	..	..	..	....	1. Well and trough at Gundáúooparú. 2. Well at Ambethi. 3. Well at Adasar. 4. Well at Wasna Relia. 5. Well at Dholka near the Astana tank. 6. Well at Badarkhá.
Dhandhuka	124,860	..	..	1	14,083 2 7	7,533 4 10	6,549 13 9	..	..	..	....	Certain improvements to the tank at Phedra.
Viramgám	128,044	..	3	..	13,137 7 7	8,414 7 3	4,733 0 4	..	..	..	....	1. Well at Rampura. 2. Well at Ookardí. 2. Well at Haripura.
Paránti]	71,072	..	..	..	7,768 7 3	3,492 11 0	4,275 12 3	..	..	..	....	... .
Sánand	73,229	..	..	..	12,296 0 4	9,438 1 11	2,857 14 5	..	..	..	....	1. Kutcha well near the Chharodi railway station. 2. Well at Chharodi.
Gogo	33,829	..	..	..	1,881 10 10	2,007 15 1	..	..	..	..	....	Well at Trimbak.
Total ..	675,019	..	8	6	99,034 8 6	1,15,594 3 11	20,550 2 10	..	..	..		

Name of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of sanitary requirements most urgently needed.	List of sanitary improvements during the year.
KURRACHEE.												
					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Kurrachee	56,753	None.	None.	None.	2,61,274 5 5	1,61,489 1 5	99,785 4 0	41,470 12 0	557	1,185	Water-supply drainage	Surface drainage, road metalling, and building masonry bunds to protect certain districts from being flooded.
Schwan Division.												
Dadu	2,198	,,	5	1	3,104 1 9	3,250 0 3	3,684 8 3	735 3 4	18	72		
Jhi	4,419	,,	4	None.	1,916 9 9	1,661 13 9	937 5 1	312 0 0	37	37		
Schwan	4,294	,,	4	,,	7,598 12 6	8,619 10 9	529 13 7	1,702 1 4	39	104		
Bubak	2,759	,,	None.	,,	3,193 7 11	2,347 8 8	3,315 2 8	432 0 0	48	101	.. ..	A new vegetable market has nearly been completed, and a fish market has been improved.
Manjhand	3,872	,,	,,	,,	2,327 6 10	2,843 12 10	1,851 12 1	455 12 7	47	52		
Kotri	7,949	,,	28	,,	15,445 9 7	23,710 12 8	9,656 14 3	3,137 11 3	29	224		
Jerruck Division.												
Jerruck	1,666	None.	None.	None.	1,416 1 11	1,165 3 7	2,889 15 10	380 2 7	30	103		
Tatta	7,951	1*a*	1*a*	3*a*	11,368 8 0	10,265 2 1	10,198 5 11	1,805 15 10	29	78		
Keti	2,199	None.	None.	None.	6 7,886 6 6	42,075 1 8	707 6 1	30	83			
Shahabandar Division.												
Mirpur Batora ..	2,846	,,	3	3	5,880 6 3	9,773 8 9	1,770 9 3	801 14 8	49	108	....	To save the town from flood water a bund was erected at a considerable expense.
Total ..	96,906	1	45	7	3,19,938 12 10	2,32,813 0 5	1,76,094 12 6	51,940 14 8	913	2,147		

* The figures are taken from the Census of February 21st, 1872.
a. Besides the wells and tanks given in this statement which belong to the Municipality, there are five tanks and one well with steps at Tatta used for drinking purposes only.
b. The expenditure exceeds the income owing to embankments eroded by the river having been repaired and a new bund costing Rs. 1,400 having been erected.

HYDERABAD.

Local Funds. Hyderabad Collectorate	..	..	..	..	1,22,543 0 0	1,09,253 0 0	34,350 0 0	3,960 0 0	5,078	9,764						
											No.	Name of Work.	Amount sanctioned.	No.	Name of Work.	Amount expended.
												Hála Division.	Rs. a. p.			Rs. a. p.
											1	Restoration of the well at Shah Mahomed ..	80 0 0	1	New well at Khuda Baksh, Táluka Hála ..	800 0 0
											2	Do. Anna Lakho	140 0 0	2	Do. Kebrani do.	600 0 0
											3	Do. Brahmanabad	110 0 0	3	Do. Tahir Jamali do.	100 0 0
											4	Do. Dhamrakhi	300 0 0	4	Do. Khar Mirpur	300 0 0
											5	Do. Jhol	150 0 0	5	Completing do. Sono Lakho do.	150 0 0
											6	Do. Kulkali	350 0 0	6	New do. Lal Baksh Sakrand	201 0 0
											7	Do. Topan Dahu	150 0 0	7	Completing well at Zaurango Got, Táluka Hyderabad	225 0 0
											8	Do. Khathur	80 0 0	8	Do. Shaik Bhirkyo do. ..	400 0 0
											9	Do. Kheirah	50 0 0	9	New well at Daria Khan, Táluka Naushahro ..	400 0 0
											10	Do. Lakha	200 0 0	10	Water trough to be attached to the Cattle Pounds in the Naushahro Division	383 0 0
											11	Do. Jam Satih	100 0 0	11	Do. do. Hyderabad Division	120 0 0
											12	Do. Kaisar-jo-Goth	230 0 0	12	Do. do. Tanda Division	256 0 0
											13	New well at Makrano	920 0 0	13	Improving Well at Bhelani, Táluka Khandiure.	25 0 0
											14	Do. Masu Bazdar	500 0 0			
											15	Do. Buhran Shah	330 0 0		Total .. Rs.	3,960 0 0
											16	Tank at Jhol	50 0 0			
											17	Do. Berani	100 0 0			
												Naushahro Division.				
											18	Well at Bhone	400 0 0			
											19	Do. on the Peid-Idan and Jalbani road	400 0 0			
											20	Do. near Ghot Kundur	500 0 0			
												Total .. Rs.	5,140 0 0			

THAR AND PA'RKAR.

Umarkot	3,999	..	3	3	8,578 2 6	9,445 6 9	..	1,152 0 3	103	215		
Nabisar	1,629	..	*1	1	976 15 3	1,212 4 1	..	476 8 0	52	99		
Juda	1,600	..	1		3,871 1 4	1,715 3 6	2,155 13 10	302 12 3	62	75		
Kháror a	1,200	..	..	A canal named Mithrui is running by the side of this town.	985 12 2	1,368 12 3	..	193 4 0	59	108	....	A new well constructed in 1878.
Cháchra	1,666	..	1	1	1,233 3 8	973 8 11	259 10 9	314 1 0	48	59		
Gadar	1,126	..	1	1	445 11 8	409 13 7	35 14 1	93 6 0	39	62		
Dipa	960	..	3	1	829 6 5	671 7 7	157 14 10	116 10 0	41	13		
Mitti	2,580	..	1	1	2,029 9 1	2,593 5 10	..	475 0 4	65	58		
Islamkot	883	..	2	..	400 6 1	711 12 0	..	79 3 0	32	28		
Nagar	2,425	..	7	2	2,959 9 0	3,671 0 2	..	392 6 0	35	69	Stalls for selling vegetables are proposed to be constructed in 1879.	A new well constructed in 1878.
Viráwáh	1,141	.	4	2	387 12 5	1,255 10 4	..	205 10 0	21	47		
Sánghar	1,260	..	2	1	738 14 5	839 11 2	..	182 0 0	22	21		
Khipra	1,460	..	2	..	2,197 6 5	2,209 12 7	..	218 6 0	27	31		
Total ..	21,928	..	28	13	25,633 14 5	27,077 12 9	2,609 5 6	4,201 2 10	606	785		

* Submerged by the floods.

N.B.—Under the head "Drinking Water Supply," all wells and tanks at present existing have been shown.

SHIKA'RPUR.

Shikárpur	40,400	..	170	5	77,073 8 1	57,346 14 7	19,726 9 6	10,084 15 10	776	1,154	Paving the main bázár, new meat market, and new troughs and drains to wells, and sinking absorbing wells for percolation and drainage water.	Cleaning nine wells. New fruit market. Filling in hollows round about the city.
Sukkur	14,279	8	15	1	1,22,658 3 9	1,20,963 13 5	45,343 3 8	10,105 14 2	168	283	Raising the level of lanes and streets and filling up hollows to carry off surface drainage. Alterations and improvements of latrines.	New night soil carts. Cleaning and repairing surface drains and culverts. Repairing, cleaning, and improving wells. Cleaning town sewers. Levelling and covering with a layer of earth. Sweeping ground. Filling up hollows. New market.
Garhi Yásin	4,808	..	14	..	5,242 7 7	5,848 8 4	534 9 2	1,490 15 11	61	82	Entertainment of a man with a donkey and barrel, on Rs. 9 per mensem.	Cleaning latrines during the year.
Rohri	8,580	..	..	..	12,331 6 4	11,210 7 3	6,227 11 2	5,212 12 7	288	171		
Ghotki	3,689	..	1	..	2,011 5 6	2,489 15 6	1,478 2 4	308 10 7	16	43	Latrines are required which will be constructed	One cart and three sweepers employed for better conservancy of the town.
Ubauro	2,585	..	42	..	915 8 9	1,047 11 8	484 10 5	143 0 0	33	9		
Lárkhána	10,643	..	18	3	19,086 7 1	16,546 7 9	2,539 15 4	2,220 10 0	121	190	Appointment of a Nuisance Inspector will be brought before the general committee.	
Kato-dero	3,057	..	9	4	3,224 2 5	3,392 0 4	..	1,020 6 6	39	54		
Kambar	3,518	..	2	2	5,626 7 7	4,503 12 10	1,122 10 9	812 15 6	107	110		
Mehar	2,174	..	19	†3	1,943 11 10	1,881 0 7	62 11 3	239 8 0	58	34	....	Two public wells repaired, and one new well was sunk. Two tanks repaired.
Khairpur Nátheshán	1,438	..	6	†1	1,766 12 8	1,461 3 3	305 9 5	175 0 0	28	48	....	One tank repaired.
Total ..	95,171	8	296	19	2,51,880 1 7	2,26,691 15 6	77,825 7 0	31,814 13 1	1,695	2,178		

† Tank water not used for drinking purposes.

UPPER SIND FRONTIER.

Jacobabad	5,232	..	32	2	20,593 9 2	16,267 5 5	4,326 3 9	2,772 0 0	151	145	1. Building two extra latrines for the town .. .. .. 2. Building a slaughter yard.	1. Gutters cleared. 2. Existing latrines repaired and metalic pots put in where people would ease themselves. 3. Mutton Market raised two feet high and re-roofed. 4. Night-soil and dead animals buried instead of being burnt in the open yard as before. General cleanliness of the town observed.

Statement showing the Sanitary improvements carried out by the Municipality in the Hyderabad District during the Year 1878.

Name of Municipality.	Population.	Drinking Water-supply.			Income during the year.	Expenditure during year.	Balance on last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of Sanitary requirements most urgently required.	List of Sanitary Improvements during the year.
		Number of wells with steps.	Number of wells without steps.	Tanks.								
					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Hyderabad	41,152	1	46	2	1,34,538 5 0	1,18,096 1 7	16,442 3 5	16,136 8 11	1,133	1,843	1 Completion of Water works. 2 Improved conservancy. 3 Improved drainage.	Water works Rs. 59,786-15-11.
Tando Jam	2,223	..	7	..	3,959 10 10	786 13 5	3,172 13 5	....	29	44	Nil.	
Tando Muhammad Khán ..	3,412	..	17	..	5,680 12 11	4,272 13 2	1,407 15 9	837 1 4	35	93	None urgently required. The town is well supplied with excellent water.	None of any importance.
Hála	4,096	..	23	1	3,548 8 0	3,252 7 10	296 0 2	503 0 6	60	42	Nil.	Ordinary repairs to Markets and streets.
Matári	4,920	..	16	1	2,910 1 9	2,708 9 9	201 8 0	624 0 0	48	92	,,	Improvements to wells, streets, &c.
Tando Alahyar	3,913	..	20	1	5,928 9 5	7,729 0 1	*....	1,443 15 0	84	105	,,	Improvements to Dispensary and wells.
Tando Adam	3,457	..	9	1	6,400 7 6	5,262 0 4	1,138 7 2	600 0 0	82	124	,,	Improvements to Lightings, wells, &c.
Nasarpur	3,100	..	4	..	1,475 5 1	1,482 4 9	*....	400 0 0	40	61	,,	Do. do. do.
Shahdádpur	3,222	..	4	2	4,028 0 6	2,793 13 11	1,234 2 7	426 10 8	80	99	,,	Improvements to streets, &c.
Kandiáro	2,558	..	13	3	2,234 3 3	2,204 12 3	29 7 0	359 8 6	64	68	,,	Filling up hollows and improving wells .. Rs. 178 10 8
Naushahro	2,950	..	8	1	2,709 5 1	2,116 11 11	592 9 2	369 5 2	76	58	,,	Improving well and band to the tank .. ,, 141 12 1
Thárú Sháh	2,219	..	6	2	2,263 8 3	2,384 3 10	*....	371 8 0	29	87	,,	Improving steps to the tank .. .. .. ,, 14 0 0
Bhiria	2,549	..	6	1	2,197 8 5	1,816 6 5	381 2 0	312 0 0	35	62		Improving wells .. .. ,, 67 0 0
Moro	2,002	..	9	1	1,397 15 3	1,748 13 10	*....	357 15 0	17	42	,,	Cleaning Latrines, &c. .. .. ,, 109 0 0
Total ..	81,773	1	188	16	1,79,272 5 3	1,56,655 1 1	24,896 4 8	22,741 9 1	1,812	2,820		

* Excess over income met from last year's balances.

SECTION VI.

GENERAL REMARKS.

Extracts from the Annual Cantonment Reports by Medical Officers.

EUROPEAN TROOPS.

POONA DIVISION OF THE ARMY.

POONA.

Lat. 18° 30' 23" N.
Long. 73° 55' 33" E.

1,815 feet above mean sea level.

Distance from sea, in a straight line, 64½ miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Depôt, 2nd Queens	1	4	29	34
2nd Battalion, 11th Foot	14	31	522	567

Health of troops has been indifferent: that of women and children fairly good. Seventeen deaths among men; of these, 6 from cholera and 2 from remittent fever. Twenty-three children died, chiefly from convulsions, fever, and diarrhœa.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

KIRKEE.

Lat. 18° 33' 20" N.
Long. 73° 53' 36" E.

1,858 feet above mean sea level.

Distance from sea, in a straight line, 63 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Hd. Qrs., late 9th Brigade R. A.	2	6	...	8
F/2 R. A.	6	8	140	154
43rd Company, Royal Engineers	1	7	12	20

Health of troops has been indifferent: that of women and children fairly good. Two deaths occurred among the men, viz., 1 from cholera and 1 from phthisis. One women died from remittent fever and 4 children from convulsions and 3 from other causes.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

SA'TA'RA.

Lat. 17° 41' 44" N.
Long. 73° 3' 6" E.

2,199·6 feet above mean sea level.

Distance from sea, in a straight line, 56 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Detachment, 66th Foot, 2 Companies ...	5	13	130	148

Health of troops has been good: that of women and children very good. One man died from apoplexy and one from dysentery.

Filters are in use.

Dry system of conservancy is carried out.

AHMEDNAGAR.

Lat. 19° 6′ 0″ N.
Long. 74° 48′ 0″ E.

About 2,140 feet above mean sea level.

Distance from sea, in a straight line, 130 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Depôt, 83rd Regiment	1	4	62	67

Health of troops has been good: that of women and children very satisfactory. Six deaths occurred among the men; 1 of these was from cholera. One woman and child died from malignant cholera, and 5 children from other causes.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

These deaths occurred in a detachment of Her M.'s 66th Regiment and N. Battery, 1st Brigade, while stationed at Ahmednagar.

PURANDHAR.

Lat. 18° 16′ 33″ N.
Long. 74° 0′ 45″ E.

4,560 feet above mean sea level.

Distance from sea, in a straight line, 66 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Sanitarium Staff	...	4	...	4
R. A., B. D.	...	1	...	1
A/2nd R. A.	...	...	3	3
1/2nd Queens	...	2	18	20
2/7th Fusiliers...	2	...	...	2
2/11th Regiment	...	...	1	1
2/15th do.	...	...	4	4
66th do.	...	...	1	1
Army Medical Department	1	...	...	1
Total ...	3	7	27	37

The invalids sent to the sanitarium have, with few exceptions, derived great benefit. Health of women and children has been good. Five deaths occurred, 3 among men and 2 among children.

Macnamara's Filters are in use.

The night-soil is removed by the sweepers and buried in pits.

NORTHERN DIVISION OF THE ARMY.

AHMEDABAD.

Lat. 23° 1′ 26″ N.
Long. 72° 37′ 21″ E.

Distance from sea, in a straight line, 55 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
A. Battery, 2nd Brigade, R. A.	6	19	85	110
Detachment, 2/15th Regiment	4	10	94	108

Health of troops has been good: that of women and children good. Six deaths occurred among the men; of these, 1 was from cholera, 1 from small-pox, and 2 from enteric fever. One women died from sunstroke. One child from diarrhœa and 1 from other causes.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

DEESA.

Lat. 24° 15′ 44″ N.
Long. 72° 13′ 55″ E.

Distance from sea, in a straight line, 140 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans
2/15th Regiment	16	28	384	428
B/2nd Royal Artillery	6	8	149	163

Health of Troops has been fairly good: that of women and children indifferent. Eleven deaths occurred among the men; of these, 2 were from cholera and 5 from enteric fever. Seven women died; 4 from cholera. There were 42 deaths among children, principally from diarrhœa.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

MOUNT ABU.

Lat. 24° 35′ 37″ N.
Long. 72° 45′ 16″ E.

3,950 feet above mean sea level.

Distance from sea, in a straight line, 161 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Sanitarium Staff	1	3	...	4
British Medical Force	1	...	...	1
Detachment, 2/15th Regiment	...	1	63	64

Health of the Troops was remarkably good until after the rains, when malarial fever became very prevalent: that of women and children fairly good. One man died from heart-disease, 1 women from dysentery, and 1 child from convulsions.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

BARODA.

Lat. 22° 19′ 33″ N.
Long. 73° 13′ 44″ E.

115 feet above sea level.

Distance from sea, in a straight line, 41 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Detachment, A/2 Royal Artillery	1	5	48	54
Do. 2/15th Regiment	4	7	148	159

Health of Troops has been indifferent: that of women and children very good. Five deaths occurred among the men, 1 was from small-pox. One child died from cholera, and 1 from convulsions.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

MHOW DIVISION OF THE ARMY.

MHOW.

Lat. 23° 33′ 15″ N.
Long. 75° 48′ 20″ E.

1,919 feet above mean sea level.

Distance from sea, in a straight line, 206 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
D. Battery, B. Brigade, R. H. A.	6	8	150	164
3rd K. O. Regiment of Hussars	21	30	325	376
17 Battery, 8th Brigade, R. A.	3	6	87	96
1/2 Queen's Royal Regiment...	26	40	662	728

Health of Troops has been fair: that of women and children good. Twenty deaths occurred among the men; of these, 11 were from enteric fever. Three deaths among women and 29 among the children; the latter deaths were chiefly from diarrhœa, convulsions, and measles.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

INDORE.

Lat. 22° 42′ 18″ N.
Long. 75° 55′ 35″ E.

1,852 feet above mean sea level.

Distance from sea, in a straight line, 214 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Detachment, 2/17th Regiment	2	5	107	114

Health of Troops had been good up to August, when cholera made its appearance, and on the 20th of the same month the troops were removed from this station: health of women and children very good. Six deaths occurred among the men; 5 from cholera and 1 from remittent fever.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

NEEMUCH.

Lat. 24° 27′ 38″ N.
Long. 74° 54′ 15″ E.

1,616 feet above mean sea level.

Distance from sea, in a straight line, 212 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
E. Battery, 2nd Brigade, R. A.	6	27	152	474
Detachment, 68th Light Infantry	6	14	269	

Health of Troops has been unsatisfactory: that of women and children good. Twenty-one deaths occurred among the men; 14 were from cholera. Four among the children.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

NUSSERABAD.

Lat. 26° 18′ 15″ N.
Long. 74° 46′ 10″ E.

1,460 feet above mean sea level.

Distance from sea, in a straight line, 310 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
G. Battery, 2nd Brigade, R. A.	4	8	156	168
2/17th Regiment	16	30	445	491

Health of Troops has been indifferent: that of women and children fair. Twenty-two deaths occurred among the men; 12 were from cholera. Two women and 11 children died.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

ASIRGARH.

Lat. 21° 28′ 14″ N.
Long. 76° 20′ 9″ E.

2,204 feet above mean sea level.

Distance from sea, in a straight line, 225 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Detachment, 2/17th Regiment*	3	14	89	106
Do. do. †	3	15	112	130
Do. do. ‡	...	2	28	30
Do. 1/2nd Queens §	2	2	66	70

* From 2nd, 9th, 1878, to 12th October 1878.
† From 13th October 1878 to 20th October 1878.
‡ From 21st October 1878 to 25th December 1878.
§ From 21st October 1878 to 31st December 1878.

Health of Troops has been fair: that of women and children the same. Three deaths occurred among the men; 2 from remittent fever at Khandva and 1 from abscess of the liver at this station.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

BELGAUM DISTRICT.

BELGAUM.

Lat. 15° 51′ 37″ N.
Long. 74° 33′ 59″ E.

2,568 feet above mean sea level.

Distance from sea, in a straight line, 54 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Left Wing, 2/7th Royal Fusiliers	5	17	252	274

133383

The troops in Belgaum, during the year, were C/2 Royal Artillery, and 2/17th Royal Fusiliers, with a few men of other corps.

Health of Troops has been good: that of women and children fairly good. Eleven deaths occurred among men, 3 were from enteric fever. Ten children died, chiefly from dentition and convulsions.

Macnamara's Filters are in use.

The night-soil and urine are daily removed in night-soil carts to filth-yards, two miles north-west of cantonment.

BOMBAY DISTRICT.

BOMBAY CITY.

Lat. 18° 55′ 50″ N.
Long. 72° 52′ 30″ E.

At sea level.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Heads Quarters, 8th Brigade, Royal Artillery	2	2	...	4
5/8th do.	5	16	71	92
19/8th do.	4	15	66	85
2/7th Fusiliers	12	22	363	397

Health of Troops has been fair: that of women and children good. The health of the permanent staff of the Colába Depôt has been good. Thirteen deaths occurred among men. Five were from cholera; these 5 men belonged to F/2 Royal Artillery and M 1 Royal Artillery, en route to Malta. Two deaths among women—1 from cholera. Nine children died.

Macnamara's Filters are in use.

The night-soil is put in iron tank carts, which are removed during the night.

DEOLA'LI.

Lat. 19° 53′ 46″ N.
Long. 73° 52′ 15″ E.

About 1,960 feet above mean sea level.

Distance from sea, in a straight line, 74 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Details and Station Strength	14	39	417	472

As the strength of the Depôt is made up of men merely passing through, and who only remain for a few days, and as they, on departure, leave their "sick" behind, it is impossible to draw any correct conclusions as to the proportionate sickness and mortality of the station.

The health of the women and children (of the permanent garrison) has been good, and no deaths took place during the year. Eight men di d in, and two out of, Hospital. Twenty-seven deaths occurred among the children passing through the station; the mortality was caused mainly by measles and convulsions.

The ordinary chatti filters are used. Macnamara's Filters have been applied for.

SIND DIVISION OF THE ARMY.

KURRACHEE.

Lat. 24° 49′ 49″ N.
Long. 67° 4′ 2″ E.

35 feet above mean sea level.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
M Battery, 1st Brigade, Royal Artillery	5	20	131	156
66th Regiment	16	23	428	467

Health of Troops has been fairly good: that of women and children good. Twelve deaths occurred among men; of which 2 were from enteric fever. Two women and 18 children died; the latter chiefly from measles and (remittent and continued) fever.

Macnamara's Filters are in use.

Ghizree Sanitarium.

The health of the men, sent from Kurrachee and Hyderabad for change of air, has been satisfactory: that of women and children very satisfactory. One man died from enteric fever

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

HYDERABAD.

Lat. 25° 23′ 5″ N.
Long. 68°. 24′ 51″ E.

66 feet above mean sea level.

Distance from sea, in a straight line, 92 miles.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
Detachment, 83rd Regiment	3	12	238	253

Health of Troops has been good: that of women and children fair. Five deaths occurred among the men and 4 among the children.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

ADEN.

Lat. 12° 45′ 23″ N.
Long. 45° 4′ 0″ E.

About 150 feet above mean sea level.

Garrison.

Corps.	European Troops.			
	Officers.	Non-Commissioned Officers.	Rank and File.	Total Europeans.
15/8th Royal Artillery	3	4	75	82
18/8th do.	2	4	70	76
1/9th do.	4	3	68	75
*1/8th "The Kings Regiment"	16	37	476	529

* Left Aden on 28th December 1878.

Health of Troops has been good: that of women and children also good. Sixteen deaths occurred among the men, and 5 among children.

Macnamara's Filters are in use.

Dry system of conservancy is carried out.

NATIVE TROOPS.

POONA-DIVISION OF THE ARMY.

POONA.

Garrison.

Corps.	Native Troops.					
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	Total Fighting Men.
2nd Light Cavalry	1	2	7	76	85	86
4th Regiment, N. I.	5	13	39	603	655	660
11th do.	5	11	35	473	519	524
18th do.	5	6	16	229	251	256

Health of the Native Troops has been fairly good. Twelve deaths took place; of these, 2 were from cholera.

The latrines are situated towards the north and west of the Lines.

The excreta, &c., are removed by the conservancy carts to the cantonment manure-ground; and emptied into trenches and covered with earth.

KIRKEE.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
Head Quarters, 9th Brigade, R. A. ...	...	...	1	2	3	3
F 2 Royal Artillery	...	...	1	12	13	13
Bombay Sappers and Miners	6	2	6	39	47	53

Health of the Troops has been indifferent. Four deaths took place.

The filth from the latrine is conveyed in a tank cart to a spot on the outer or Kirkee side of the river.

SHOLA'PUR.

Lat. 17° 40′ 18″ N.
Long. 75° 56′ 38″ E.

1,669 feet above mean sea level.

Distance from sea, in a straight line, 181 miles.

Report not received.

SA'TA'RA.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
4th Regiment (Rifles) N. I.	4	7	19	363	389	393

Health of Troops has been fair. Six deaths occurred; out of which 1 was from cholera.

Two trench latrines were introduced in March 1877; they were distant from the Lines 750 feet, the system did not work well. The men preferred going to the jungle.

SIRU'R.

Lat. 18° 49′ 50″ N.
Long. 74° 22′ 53″ E.

1,831 feet above mean sea level.

Distance from sea, in a straight line, 96 miles.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
Poona Horse	6	21	38	435	494	500

Health of the Regiment has been good.* Six deaths took place; 5 of which occurred in, and one out of, Hospital; of these, 1 died from cholera. Conservancy carts remove the night-soil, which is deposited on ground, under cultivation, some distance to Leeward of Camp.

AHMEDNAGAR.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
23rd Regiment, N. I.	10	12	35	628	675	685

Health of the Regiment has been good. There were 13 deaths during the year, 1 was from cholera. These deaths occurred in H. M.'s 15th Regiment, N. I. while stationed in Ahmednagar.

The Regimental Latrines are 250 yards distance from the lines.

MA'LEGAON.

Lat. 20° 34′ 7″ N.
Long. 74° 33′ 30″ E.

1,840 feet above mean sea level.

Distance from sea, in a straight line, 110 miles.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
Left Wing, 13th Regiment, N. I. ...	2	8	13	256	277	279

Health of the Regiment was good. Nine deaths occurred; 4 of which took place in, and 5 out of, Hospital; 1 death was from cholera.

Trench system of conservancy is carried out.

ASIRGARH.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
* Detachment, 4th Regiment, N. I. ...	1	4	6	140	150	151
† Do. 8th Regiment, N. I. ...	1	3	7	114	124	125

* Station at Asirgarh from 1st January 1878 to 1st November 1878.
† Station at Asirgarh since 2nd November 1878.

Health of the Troops has been very good. Three deaths occurred; of these, 2 took place in, and 1 out of, Hospital.

Dry earth system of conservancy is carried out.

NORTHERN DIVISION OF THE ARMY.

AHMEDABAD.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
15th Regiment, N. I.	6	12	35	547	594	600
Left Wing, 26th Regiment, N. I. ...	1	7	20	272	299	300

Health of the Troops has been fair. Sixteen deaths occurred in the Hospital; of these, 8 were from cholera, 1 from small-pox, 2 from enteric fever, and 3 from intermittent fever. Six deaths took place out of Hospital. Dry method of removal is in operation.

DEESA.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
B-2nd Royal Artillery	...	...	1	12	13	13
2nd Light Cavalry	5	9	18	186	213	218
18th Regiment, N. I....	6	16	40	638	694	700

Health of the Troops has been good. Fourteen deaths occurred; 8 of which took place in, and 6 out of, Hospital; of the deaths in Hospital, 1 was from cholera and 1 from remittent fever.

Trench system of conservancy is carried out.

Sanitarium, Mount Aboo.

Native Troops—none.

BHUJ.

Lat. 23° 14′ 52″ N.
Long. 69° 42′ 21″ E.

Distance from sea, in a straight line, 28 miles.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non Commissioned Officers.	Rank and File.	Total Natives.	
H. M.'s 11th Regiment, N. I. ...	7	16	35	552	603	610

Health of the Regiment was good up to September, when ague became prevalent. Twenty-five deaths occurred; of these, 16 took place in, and 9 out of, Hospital.

The Trench system of conservancy is carried out.

BARODA.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
20th Regiment, N. I.	9	16	80	591	687	696

Health of the Regiment has been fairly good. Thirteen deaths occurred; of these, 9 took place in, and 4 out of, Hospital; of the deaths in Hospital, 1 was from cholera.

Trench system of conservancy is carried out.

RA'JKOT.

Lat. 28° 18′ 4″ N.
Long. 73° 50′ 55″ E.

Distance from sea, in a straight line, 83 miles.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Offices.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
3rd Squadron, 2nd Regiment, L. C. ...	1	5	9	122	136	137
No. 1, M. Battery	1	1	8	110	119	120
H. M.'s 7th Regiment, N. I. ...	3	6	10	189	205	208
H. M.'s 28th Regiment, N. I. ...	3	5	11	154	170	173

Health of the Troops, up to September last, was excellent, when ague and intermittent fever became prevalent, and continued to increase during the following months. Fourteen deaths took place; of these, 9 occurred in, and 5 out of, Hospital.

Dry-earth system of conservancy is carried out.

MHOW DIVISION OF THE ARMY.

MHOW.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
Heavy Field Battery	...	...	9	175	184	184
6th Regiment, N. I.	4	6	22	404	432	436
13th Regiment, N. I.	9	16	40	640	696	705

Health of the Troops has been fair. Nineteen deaths occurred; of these, 10 took place in, and 9 out of, Hospital.

Trench system of conservancy is carried out.

NEEMUCH.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
3rd Q.'s O. Regiment, Light Cavalry ...	8	13	28	167	844	857
10th Regiment N. L. I. ...	5	16	41	579		

Health of the Troops has been fair. Thirteen deaths took place; of these, 9 occurred in, and 4 out of, Hospital.

The ground is too hard for trench latrines. All the latrines of the 3rd Q.'s O. Regiment were condemned as being too near the wells, a temporary one is in use until the new masonry one is built.

NUSSEERABAD.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Native.	
Squadron, 3rd Q.'s O. Regiment, L. C. ...	1	5	13	119	137	138
H. M.'s 16th Regiment, N. I. ...	5	16	40	629	685	690

Health of the Troops has been fair. Fifteen deaths occurred; of these, 13 took place in, and 2 out of, Hospital.

Trench system of conservancy is carried out.

INDORE.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
Right Wing, 6th Regiment, N. I.... ...	1	4	13	201	218	219

Health of the Regiment has been fair. Ten deaths occurred; of these, 8 deaths were from cholera, which took place on the way from Mhow to this station.

Dry-earth system of conservancy is carried out.

MEHIDPUR.

Lat. 23° 28′ 40″ N.
Long. 75° 41′ 7″ E.

1,540 feet above mean sea level.

Distance from sea, in a straight line, 218 miles.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
Head Quarters, 24th Regiment, N. I. ...	6	9	20	349	378	384

Health of the Troop has been good. Six deaths occurred in Hospital; of these, 3 were from cholera, 1 man died out of Hospital.

The Trench system of conservancy is carried out.

BELGAUM DISTRICT.

BELGAUM.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
H. M.'s 14th Regiment, N. I. ...	7	11	31	504	546	553
H. M.'s 22nd Regiment, N. I. ...	7	13	31	549	593	600

Health of the Troops has been indifferent. Eighteen deaths occurred in hospital; of these, 2 were from cholera and 1 from remittent fever. Three deaths took place out of Hospital. Eight men died whilst absent on furlough or medical certificate.

Latrines are in use.

DHARWA'R.

Lat. 15° 27′ 3″ N.
Long. 75° 2′ 42″ E.

2,586 feet above mean sea level.

Distance from sea, in a straight line, 73 miles.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
H. M.'s 12th Regiment, N. I. ...	4	10	51	406	467	471

Health of the Regiment has been fair. Eight deaths occurred in Hospital; of these, 2 were from cholera.

Trench system of conservancy is carried out.

KOLHA'PUR. (unoccupied.)

Lat. 16° 41′ 42″ N.
Long. 74° 16′ 6″ E.

Distance from sea, in a straight line, 60 miles.

BOMBAY DISTRICTS.

BOMBAY.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
Detachment, 8th Regiment, N. I. ...	1	4	8	126	138	139
H. M.'s 9th Regiment, N. I. ...	5	14	72	602	688	693
H. M.'s 21st Regiment, N. I. ...	8	16	70	595	681	689

Health of the Troops has been good. Seventeen men died in Hospital and 4 out of it.

Latrines are in use.

THA'NA.

Lat. 19° 11′ 25″ N.
Long. 73° 1′ 30″ E.

Distance from sea, in a straight line, 9½ miles.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
26th Regiment, B. N. I.	1	5	42	213	260	261
18th Regiment, B. N. I.	...	2	10	95	107	107

The Right Wing of the 7th Regiment, N. I., was quartered at this station from January to October 1878, and was relieved by the Left Wing of the 26th Regiment, N. I., which, in its turn, was relieved in November 1878 by a single company of the 18th Regiment, N. I.

The health of the Troops has been good. Five deaths occurred; of these 4 took place in Hospital and 1 (died from snake-bite) out of Hospital.

There are 2 Latrines near the creek and on the eastern side of the Lines.

SURAT.

Lat. 21° 12′ 19″ N.
Long. 72° 51′ 57″ E.

160 feet above mean sea level.

Distance from sea, in a straight line, 13 miles.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
H. M.'s 17th Regiment, N. I. ...	5	1 6	40	656	712	717

The health of the Regiment has improved since last year. Eight deaths occurred; of these, 5 took place in, and 3 out of, Hospital. Of the deaths in Hospital 1 was from cholera and 3 from remittent fever.

Latrines are situated to the south-east of the Lines, about 250 yards distant.

SIND DIVISION OF THE ARMY.

KURRACHEE.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
H. M.'s 5th Regiment, N. I. ...	5	11	27	459	497	502

Returns from the Medical Officer have not been sent.

HYDERABAD.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
Detachment, 5th Regiment, N. I. ...	1	4	10	164	178	179

Health of the Detachment has been very good.

Latrines are in use.

JACOBABAD.

Lat. 28° 17′ 5″ N.
Long. 68° 30′ 0″ E.

About 213 feet above mean seal level.

Distance from sea, in a straight, in 255 miles.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
1st Sind Horse Depôt	1	1	8	34	43	44
2nd Sind Horse	11	18	68	394	480	491
3rd Sind Horse Depôt	1	1	5	34	40	41
27th N. L. I.	5	8	22	374	404	409
30th Regiment, N. I., Depôt ...	1	2	13	92	107	108

The health of the 1st and 2nd Sind Horse Regiment has been good. Eighteen deaths occurred; of these, 7 took place in, and 11 out of, Hospital.

Dry system of conservancy is carried out.

ADEN BRIGADE.

ADEN.

Garrison.

Corps.	Native Troops.					Total Fighting Men.
	Officers.	Native Officers.	Non-Commissioned Officers.	Rank and File.	Total Natives.	
Aden Troop	1	3	11	86	100	101
No. 1 Company, Sappers	1	2	10	73	85	86
25th Regiment, N. L. I.	6	15	34	578	627	633
Lascars, R. A.	...	...	8	97	105	105
Do. Ordnance	2	1	7	100	108	110

Health of the Troops has been fair. Two deaths took place; of these, 1 occurred in, and one out of, Hospital. Three men are reported to have died whilst absent from the regiments.

Government house at Gunesh Khind, near Poona, has, of late, acquired an unenviable notority as being an unhealthy residence, and whether the causes were within or without, there is no disguising the fact, that there has been more sickness than was to be expected in a house so carefully designed, and built, and so well situated.

The house is built at the north end of a slightly elevated patch of rocky ground, the natural slopes trending east, north, and west. The rock is the trap of the Deccan, and the soil is chiefly moorum of varying consistency.

All the out-offices are on the east, and at a much lower level. The slope here is easterly to a Nulla which is the main and natural drainage line to the Mula river on the north, about a mile distant.

The water-supply is from the Páshán reservoir, and it comes by gravitation to an old quarry on the north-west of the house. Here there is a pumping engine and an hydraulic ram. The engine-room is in the middle of the quarry, and it has been built on arches across which there are filter screens. The engine, however, is only used occasionally, and at long intervals; and ordinarily the unfiltered water is sent by the ram to an iron supply tank in the tower, and from this it is distributed to the house by leaden pipes. A special pipe from the Páshán main supplies the kitchen and out-offices. The daily consumption for house, out-offices, and grounds, is about 8,000 gallons.

The house itself has an east and west frontage, and in plan consists of a centre and two wings. The south wing has, on its ground-floor, an open entrance hall which leads to the State ball-room. On the right is a drawing room, and beyond it is the State dining-room. On the left is a bed-room with attached bath-room. From the bed-room a door opens on to a small lobby which communicates with the ball-room, and leads by a staircase to the gallery for the band ; it also leads to a bed-room over the entrance hall, and to the terraced roof. For this bed-room there are two bath-rooms, but to one of them the only approach is through the bed-room itself ; and as there are no water-closets the inconvenience may be imagined. Nor does it end when the sweeper has passed out of the room. The south wing stairs are closed to him ; for if he goes by them he must cross a corner of the State ball-room. Going by the western terrace he must pass the clerestory windows of the dining-room, and then he must either pass *every* door and window of the north wing, or go through some of its rooms. The alternative route is by the eastern terrace. By this he must pass *every* window of the south wing bed-room, and the clerestory windows of the dining-room, and then, going down the tower stairs, he emerges close to the principal carriage entrance.

The two wings are connected by the State dining-room and the Governor's library, and beyond them, on the west, is a marble paved conservatory, its roof supported on columns of polished granite.

The north wing contain the private appartments. On the ground-floor is a loggia, and beyond is the cortile, now covered in, in which is a billiard table. On the left, but quite shut off, are the tower stairs, and a servants' hall with stairs leading to an underground tunnel, which communicates with the out-offices. A small pantry connects the servants' hall with the eastern corridor of the dining-room. On the right of the cortile is the grand staircase, and beneath and beyond is a small lavatory, the waste from which passes to the rain-water pipes on the north terrace. Beyond the grand staircase is a waiting-room, and opposite is the Private Secretary's room, leading into the Governor's library. On the west of the cortile are two drawing-rooms, separated by a corridor. A verandah is continued round the house, except on the south front, and for a portion of the ball-room on the west.

On the upper-floor of the north wing are the bed and bath-rooms, and their relative positions can best be seen by reference to the plan attached.

There is a bed-room on the 2nd story of the tower, and one on the 3rd story, and in the north-west corner of each is a screened closet for bath and commode.

Over the 3rd story room is the water-supply tank. It is $12' \times 12' \times 3'$ and holds 2,700 gallons. Alongside is a smaller one for hot water : this is $7' \times 2\frac{1}{2}' \times 2'$ and holds 220 gallons. The loft in which these tanks are placed has no opening to the external air, so it is close and dark, and somewhat foul. The mezzonine floor is the ceiling of the bed-room beneath, and the tanks are on beams and tressels. If anything went wrong with the bottom of either tank it would be difficult to get at it.

From the terraced roof, above the tanks, rises the flag staff tower.

The house was designed for water-closets ; but they were found to be so offensive, that the connexions were cut, and commodes substituted. The inconvenience attaching to them must be greater in the north wing than in the south, and greatest of all in the tower bed-rooms where there is but one, and the same staircase for both occupants and sweeper.

The following are the drainage arrangements. Of the storm water a good deal is passed off by the gurgoyles, and the rest is carried by eaves gutters to downtakes, which connect with glazed earthen-ware pipe drains. On the east front the pipe drains begin at the wing angles, and the converging lines meet at a point on the right of the terrace steps passing under the wall, this joint pipe drain is continued in a south-easterly direction, and has a blind end somewhere under the terrace.* For the south front there are no downtakes. On the west there are

* Since traced out to buttress wall of terrace.

four—one in each corner of the conservatory—and passing under its marble pavement they join, and are carried beyond the terrace, and discharge there. The north-west downtakes are in the angle just outside the door of the corridor opening on to the north verandah. The pipe drain then runs to a point about 9 feet from the centre of the steps, and there it is joined by the pipe from the north east corner, and the joint drain is then continued north. At 64 feet from the verandah it is carried over the sewage pipe, and beyond this it has a blind end under the lower terrace. The levels of these pipes are not uniform, their course is not straight, and large pipes are seen joining others of smaller diameter.

The water-closet connexions having been cut there is only the bath waste to be dealt with. This, from the south wing, is carried by downtakes *built into the walls* to a 6-inch leaden pipe, which runs along the east verandah, and passing under the cortile and the north waiting-room, is found in the north verandah just outside the corridor door. Here, too, the main pipe of the north wing is found, and the junction is just outside the door about 4 feet below the pavement. Up to this point the pipes are of lead, of varying diameters, and the glazed earthen-ware begins beyond the house plinth. It runs diagonally across the terrace to the north-east corner, where a piece of 3-inch iron piping serves as a ventilator. Running upwards of 700 yards, in a north-east direction, the main pipe is led through two small circular catch pits, and then discharges by a free end into the nulla which has been spoken of as the natural drainage line to the river. From the north-east angle of the terrace to the outfall there is neither man-hole, nor shaft, nor grating.

The following are the bath arrangements:—The hot and cold water pipes are separate throughout their length, and just alongside the foot of the bath they are run through a tube at right angles to their course. A septum in this tube isolates the cold water, but the hot enters by the same pipe that discharges the waste. This discharge pipe is connected with the soil pipe of the disused water closet, and the water seal on this soil pipe is the only trap between the bath, and the unventilated drain more than 700 yards long. Before joining the soil pipe the discharge pipe receives the bath overflow, and the safe waste, neither being trapped.

In the north-west corner of the kitchen there is a small service tank, and its overflow pipe had been carefully led past the kitchen sink immediately beneath, and connected by a straight run with the kitchen pipe drain, some 700 feet long, and nowhere ventilated. When this mistake was discovered the connection was cut, but the lower end of the pipe was left open. The sink too was connected with the main by a short piece of lead piping about 4 feet long and 3 inches in diameter. The main pipe drain discharges by a free end on to a field, and a cutting carries on the waste—or is supposed to carry it—to the main nulla.

In Mr. Hewlett's report on the house he said inadvertently, that the night soil and bath-room waste from the south wing passed through the kitchen where the pipe had been purposely broken, and that the first communication between the water-closet in the building, and the external air was, in the broken, hole in the kitchen. He had not the opportunity of having the drainage system so thoroughly traced out as it has been now. There were no plans of it, and the only information he could get was from a native workman, who had heard that the pipes took such and such a course. There is now positive proof that all house waste was and is carried north, and that nothing went through the kitchen but the tower tank overflow and the rain-fall from the terraced roof above it. The discharge pipe for this passes along the underground tunnel, and formerly it went through the kitchen, so it must have been this pipe that misled him. It has been diverted and it now discharges on to a surface storm-water channel, which carries off the rain-fall of the kitchen roof. The mistake was a natural one, but apart from this point there are everywhere the most glaring defects. Knowing how offensive is kitchen sullage, it will hardly be credited that the sink was untrapped, the drain unventilated, and the overflow pipe of the service cistern connected with it. As if it were not enough that the food should be subjected to contamination,

Report for 1876, Section II, para. 42, p. 40.

some trouble had been taken to ensure that the water-supply should also be polluted. It could hardly have been worse had matters been as Mr. Hewlett supposed, and never perhaps have the want of sanitary appliances been more forcibly illustrated. Here is a place that has cost over £100,000. It was designed by an Architect, as a residence for a Governor, from first to last it rose under special, and skilled supervision, all was done for it that could be done, and yet every arrangement is opposed to the first principles of Sanitation. The very rain pipes are hidden: the heads of four are in the four corners of a covered conservatory, and the consequence is that during a storm the overflow is on to the marble pavement: were they to choke elsewhere that pavement would have to be taken up. The downtakes are built into masonry walls, so should there be leakage none can see it. The bath overflows, and safe wastes are run direct into the disused water-closet soil pipes, and there was no attempt at ventilation anywhere. The smell in the bath-rooms has been described as "abominable" and "sickening," and that sometimes it "could almost be felt." Instead of commencing outside the house the drain has been brought inside through the foundation. Practically it is a tube nearly half a mile long with one free end at a nulla, and 14 other ends in as many bath-rooms. The one supposed safe guard is the ineffective water seal of a syphon trap, and the only ventilation, except that into the house, is one paltry improvised up-cast shaft of insufficient diameter.

In India doors and windows are very generally open, and it so happens that in those months when Ganesh Khind is occupied a pretty strong breeze is almost always blowing. Foul air from the drain is constantly escaping into the house, but fortunately for all, it is at once largely diluted, and were it not for this, Typhoid would most assuredly have shown itself long ago. The fact that the "abominable" smell was prevented by pasting a piece of paper over the rose of the bath overflow, is proof of a fairly free communication between house and drain, and when the rose was closed, there was still an escape through the safe waste. What occurred in that room occurs in all at all times, and the degree of intensity varies with shifts of wind, and such like accidents. At those times when doors and windows are more or less closed, as at night, there is a general septic condition within the house which is enough, and more than enough, to account for the sickness that has prevailed. During my inspection I was accompanied by the Executive Engineer in charge, Colonel Goodfellow, V.C., and his assistance was invaluable. After many consultations on the spot he drew up a scheme for improving the arrangements, but any changes must necessarily be costly, and want of funds will not permit of their being carried out now as completely as could be wished. The offensiveness of the water-closets was a natural consequence of structural defects, and it is not surprising that they were discontinued. Seeing that the house was designed for them, and thinking that the ordinary Indian arrangements must be most inconvenient and disgusting, it was proposed to provide Jenning's Patent Valve Closets, and fit them with ventilating pipes. The existing downtakes in the north wing were to be retained, and for the south wing they were to be new. Outside of the building the downtakes were to discharge into Pott's Edinburgh air chambered trap. For the north wing the chamber was to be at the corner of the terrace wall: between the foot of the downtake and the chamber there was to be a 6-inch leaden pipe, and a 4-inch ventilating pipe was to run up above the roof. Beyond the air chamber the pipe was to be of glazed earthen-ware 6 inches in diameter, and was to run for 2,200 feet. There was to be a second air chamber 100 feet beyond the first, at every 50 feet there was to be an upcast shaft 4-inches in diameter, and at every 50 yards a man-hole. For the south wing there was to be one air chamber just outside the wall, and a second 45 feet farther on. The pipes from the upper story closets and baths were to discharge into a 4-inch stack pipe, and those from the ground-floor were to go direct into the chamber. The free-head of the stack pipe was to be just below the parapet level. For greater security the ground-floor bath waste was to be trapped before it entered the chamber. The out-fall of the 6-inch earthen-ware pipe was to be 180 feet from the south-east corner of the building. In the north wing the waste of 2 baths was to be taken to the air chamber: the pipes being trapped after their junction, and on the house, side of the chamber. The waste of 7 other baths was to be taken by the existing rain-water downtakes

which were to be trapped. For the north wing the maximum daily discharge at the out-fall is estimated at 1,500 gallons, and for the south wing 300, and this was to be received into automatic flush tanks. The one 4 feet cube, the other 3, with covers and lip. The syphons were to discharge on to an open 9-inch semi-cylindrical pipe, and from this the sewage was to pass over plots of prepared ground. The bath waste carried by the rain-water pipes was also to be delivered on to prepared plots but without the intervention of flush tanks.

Such was the proposed re-arrangement, and at best it would have been a mere makeshift. Colonel Goodfellow was in favor of laying down new pipes everywhere, and having nothing more to do with those built into the masonry of the walls. This will probably be done eventually, but at present the cost is too great, and there has been a compromise. The bath waste is now carried off by the rain water pipes, and their communications and discharge, have been much improved. Nothing is now carried by the pipe running north, but it still serves a purpose as a sub-soil drain. The kitchen sink arrangements have been immensely improved, but the drain has still to be dealt with.

In making this inspection the want of detailed plans and descriptions was much felt, and on this account they have here been given—so when the subject is again taken up—and it must be sooner or later—there will be no searching in the dark as there was on this occasion.

Unavoidable circumstances have so interfered with the bringing out of this report, that I cannot delay it any longer, although there are several matters which would have been noticed. They will be dealt with next year, and I trust most sincerely that, by that time, the cloud will have lifted which still hangs over so large a portion of the Deccan area.

JOHN LUMSDAINE,

Sanitary Commissioner for the Government of Bombay.

Bombay, October 4th, 1879.

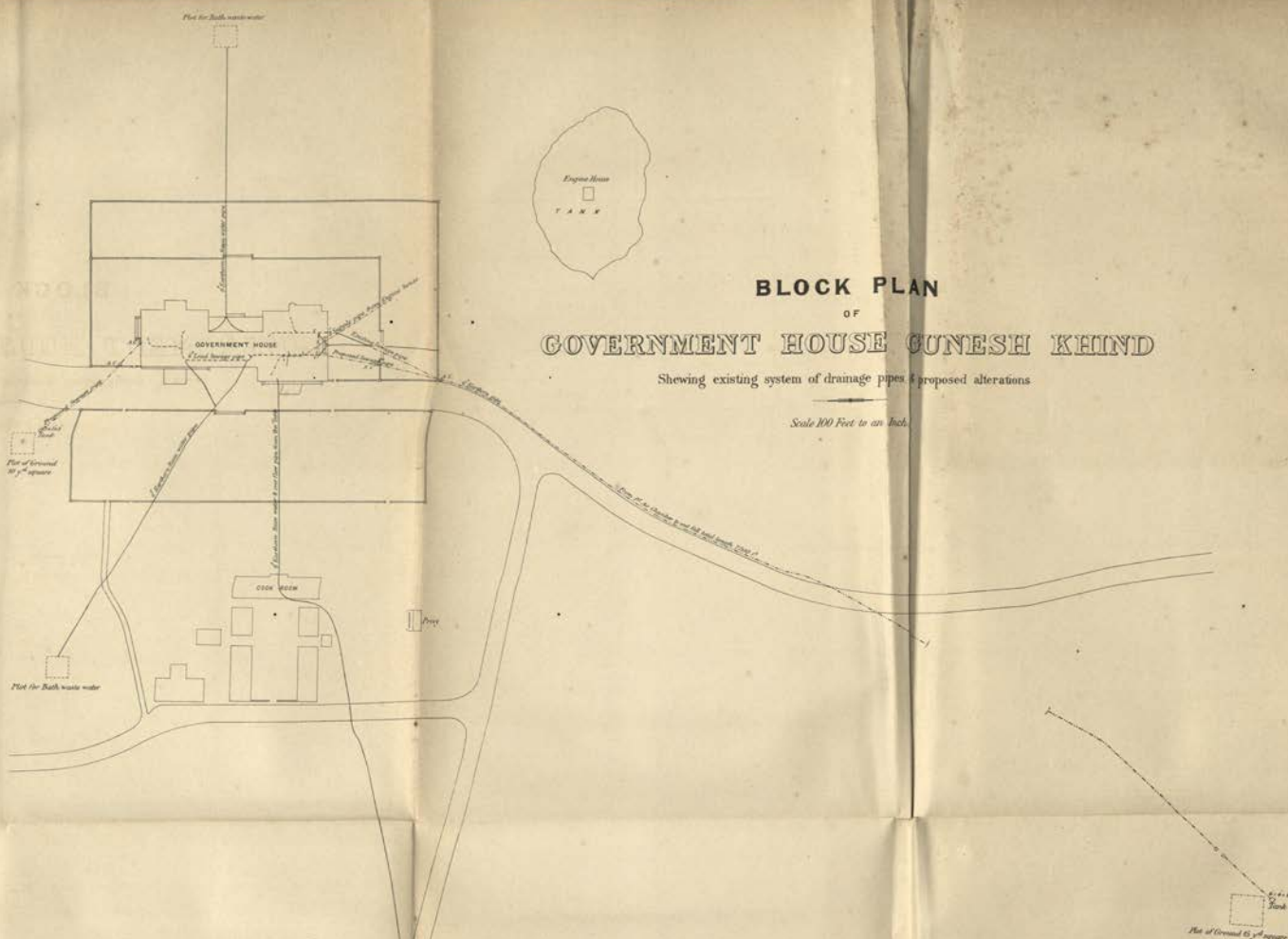
BLOCK PLAN

OF

GOVERNMENT HOUSE GUNESH KHIND

Shewing existing system of drainage pipes & proposed alterations

Scale 100 Feet to an Inch.



Executive Engineers Office P & K.
Poona 11th March 1879

(Signed.) G. DAVIDSON. Lieut. R.E.
Acting Executive Engineer P. & K.

Govt Photozincographic Office, Poona, 1879.

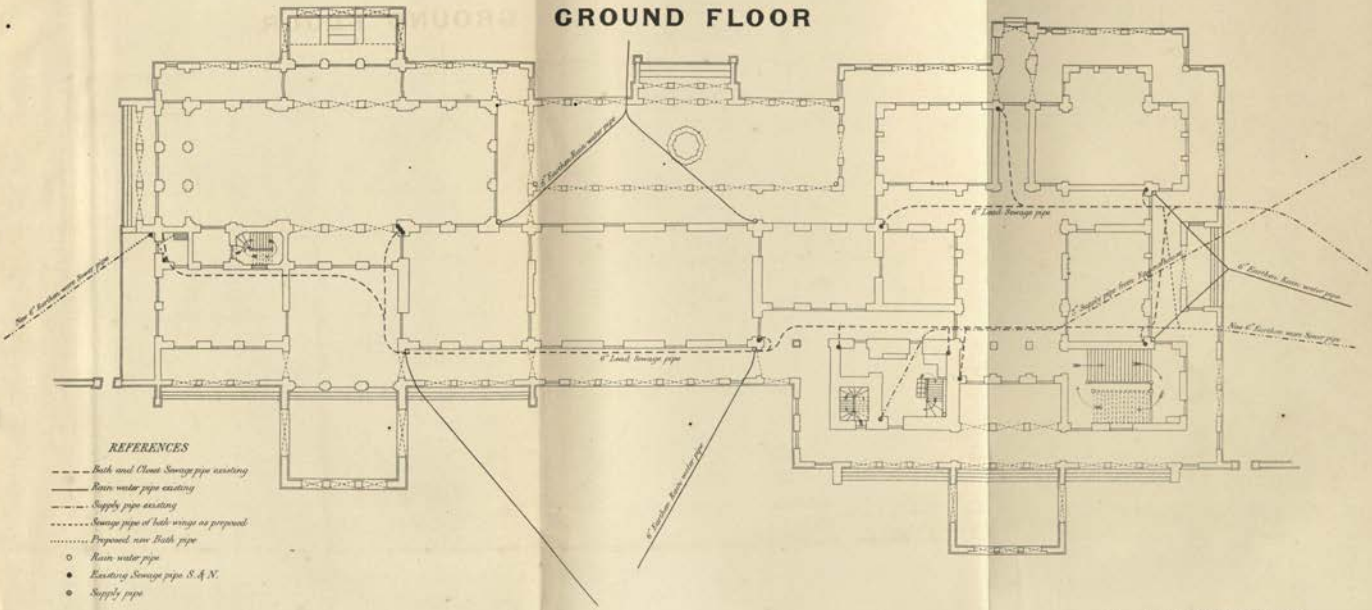
PLAN

OF

GOVERNMENT HOUSE GUNESH KHIND

Shewing existing system of drainage pipes & proposed alterations.

GROUND FLOOR


6" Earthen Rain water pipe
6" Lead Sewage pipe
6" Earthen Rain water pipe
6" Lead Sewage pipe
6" Earthen Rain water pipe
6" Earthen Rain water pipe
Nos 6" Earthen ware Sewer pipe
Nos 6" Earthen ware Sewer pipe
REFERENCES
Bath and Closet Sewage pipe existing
Rain water pipe existing
Supply pipe existing
Sewage pipe of bath wings as proposed
Proposed new Bath pipe
Rain water pipe
Existing Sewage pipe S & N.
Supply pipe

Executive Engineers Office P & K
Poona 11th March 1879

Scale 20 Feet to an Inch.

Govt Photozincographic Office Poona 1879

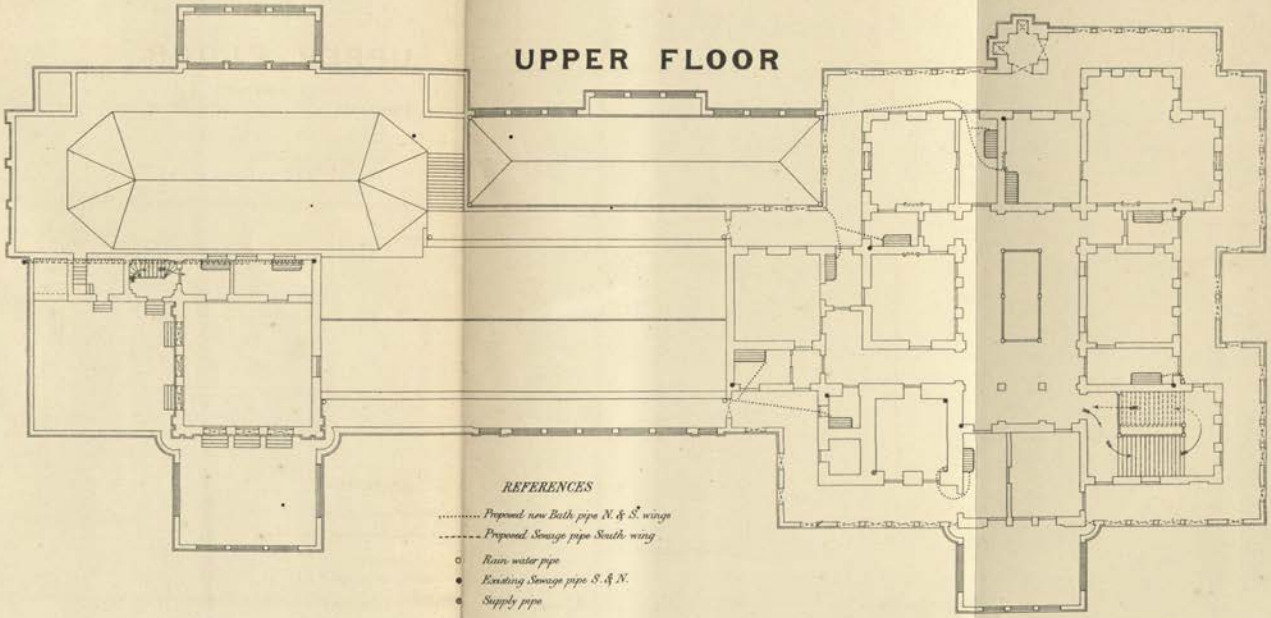
(Signed) G. DAVIDSON Lieut R E
Acting Executive Engineer P & K.

PLAN

OF

GOVERNMENT HOUSE GUNESH KHIND

UPPER FLOOR


REFERENCES
Proposed new Bath pipe N. & S. wings
Proposed Sewage pipe South wing
Rain water pipe
Existing Sewage pipe S. & N.
Supply pipe

Executive Engineers Office P & K.
Poona 11th March 1879.

Scale 20 Feet to an Inch.

Gov't Photozincographic Office, Poona. 1879.

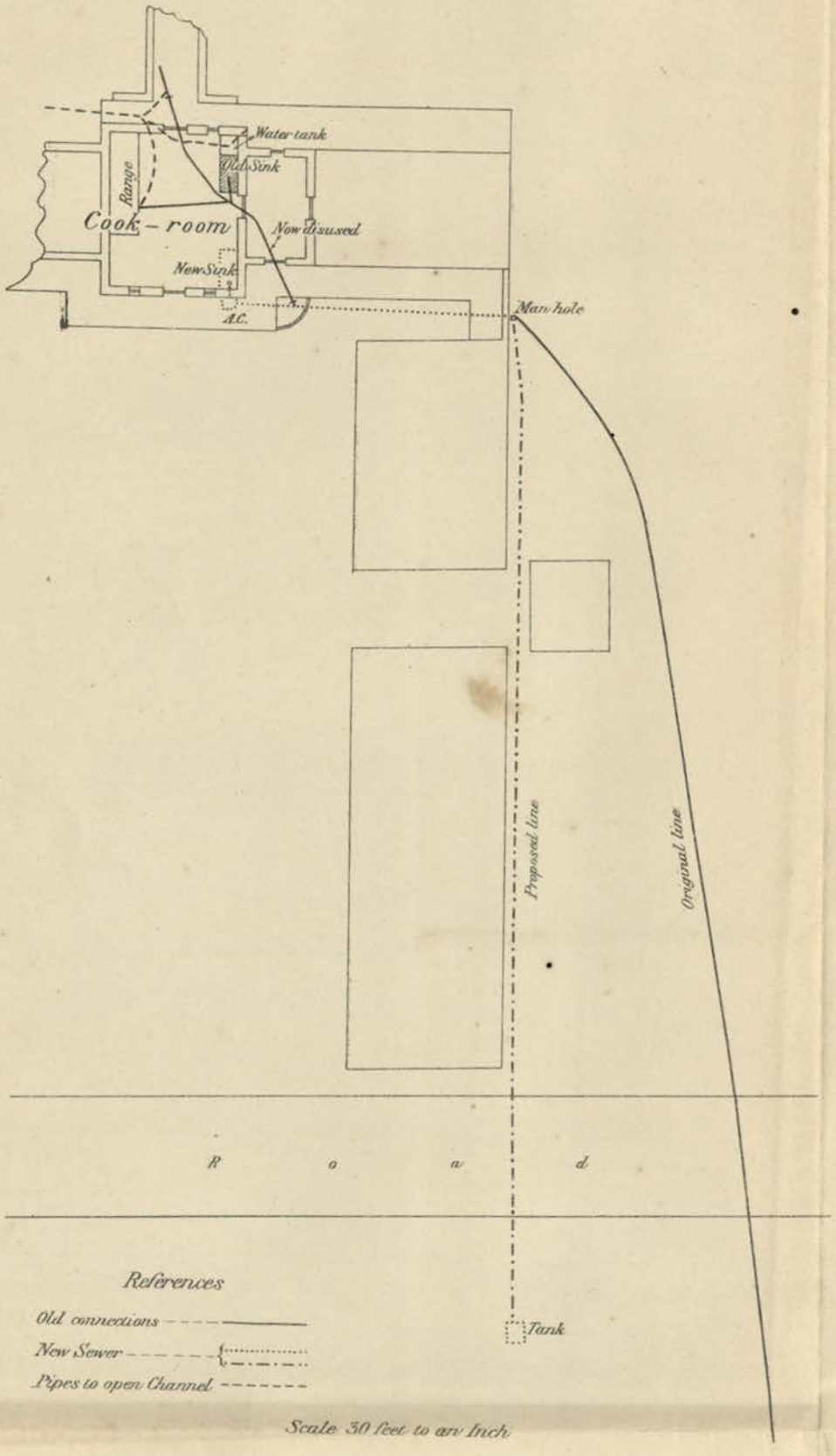
(Signed) G. DAVIDSON. Lieut: R E
Acting Executive Engineer P. & K.

BLOCK PLAN OF KITCHEN

AT

GOVERNMENT HOUSE, GUNNESH KHIND

Shewing the position of the new and old Sinks, Air Chamber trap, Sewer pipes &c.

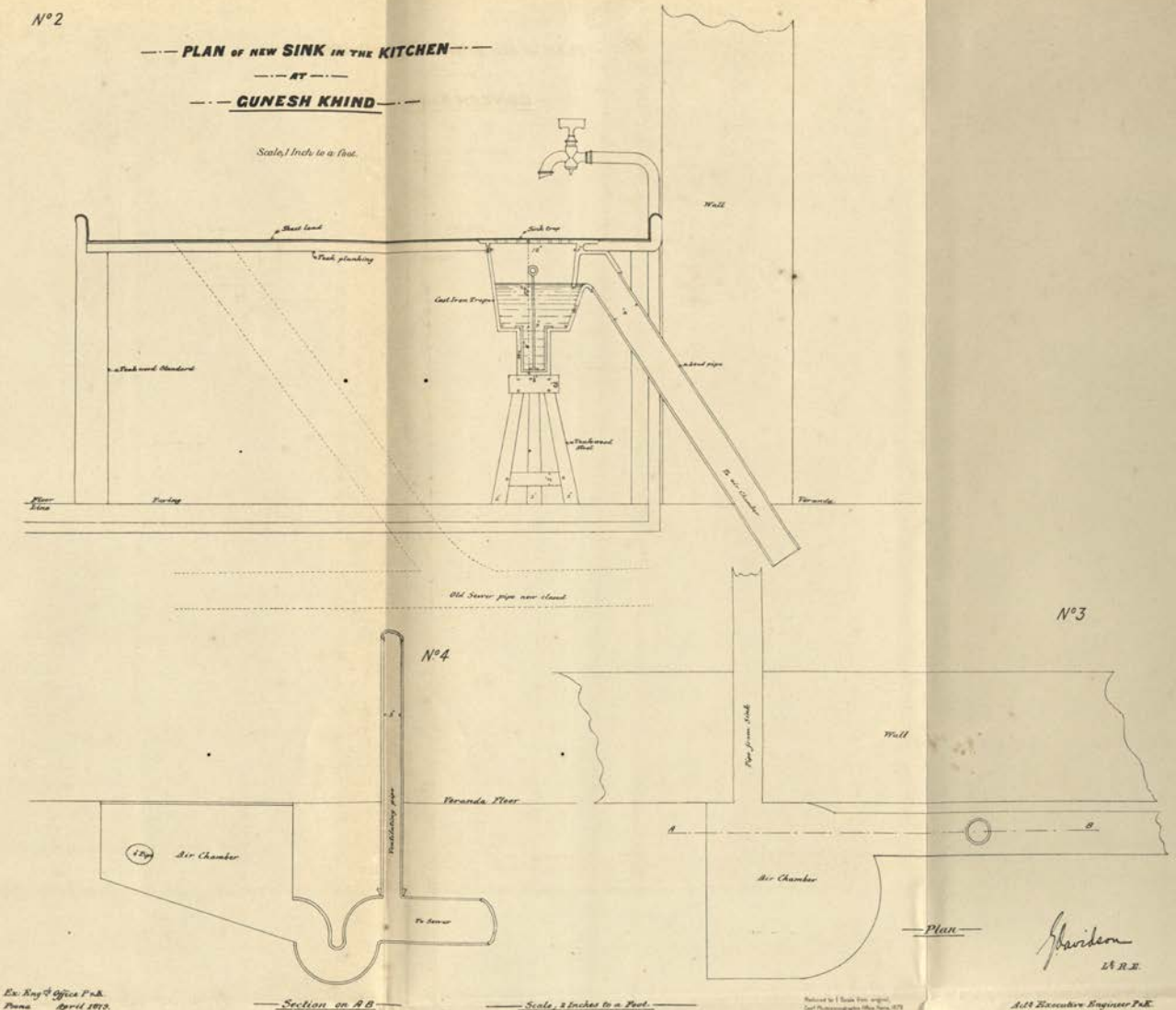


Scale 30 feet to an Inch

(Signed) C. DAVIDSON. Lieut. R.E.
Acting Executive Engineer P & K.

Ex: Eng^rs Office P & K
Poona. April 1879

Redrawn and photozincographed
Govt Office, Poona, 1879



Nº 2
PLAN OF NEW SINK IN THE KITCHEN
AT
GUNESH KHIND
Scale, 1 Inch to a foot.
Wall
Sheet lead
Sink trap
Teak planking
Cast Iron Trap
Teak wood Standard
Lead pipe
Teak wood Steel
Floor Line
Paving
Veranda
Old Sewer pipe now closed
Nº 4
Veranda Floor
Ventilating pipe
Air Chamber
To Sewer
Nº 3
Pipe from Sink
Wall
A
B
Air Chamber
Plan
Section on A B
Scale, 2 Inches to a Foot.
Ex: Eng^r & Office P.&K.
Poona April 1879.
Act^g Executive Engineer P.&K.

APPENDICES.

ANNUAL FORM NO. I.—BIRTHS *registered in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during the year* 1878.

1	2	3	4			5			6	7	8
No.	DISTRICTS.	Population according to Census of 1872.	Number of Births registered.			Ratio of Births per 1000 of Population.			Number of Males born to every 100 Females born.	Excess of Births over Deaths per 1000 of Population.	Excess of Deaths over Births per 1000 of Population.
			Male.	Female.	Total.	Male.	Female.	Total.			
	Northern Deccan Division.										
1	Khándesh	1,028,642	10,752	9,622	20,374	20·26	19·32	19·81	111·74	...	15·68
2	Násik	687,353	7,981	7,450	15,431	22·64	22·24	23·46	107·13	...	16·71
3	Ahmednagar	773,938	6,377	5,736	12,113	16·13	15·15	15·64	111·18	...	20·48
4	Poona	907,235	6,164	5,576	11,740	13·21	12·66	12·94	110·55	...	19·69
5	Sholápur	718,034	3,554	3,215	6,769	9·62	9·22	9·42	110·54	...	27·69
	Southern Deccan Division.										
6	Sátára	1,061,002	9,773	8,952	18,725	18·12	17·16	17·64	109·17	...	20·88
7	Belgaum	938,750	6,080	5,693	11,773	12·70	12·38	12·54	106·80	...	34·54
8	Dhárwár	988,037	5,195	4,771	9,966	10·26	9·90	10·08	108·88	...	32·82
9	Kaládgi	816,037	1,463	1,332	2,795	3·50	3·35	3·42	109·83	...	26·25
	Konkan Division.										
10	Kánára	398,406	4,072	3,985	8,057	19·73	20·75	20·22	102·20	...	23·05
11	Ratnágiri	1,019,136	7,115	6,689	13,804	14·48	12·66	13·55	106·37	...	5·16
12	Kolába	350,405	3,100	2,943	6,043	17·41	17·07	17·24	105·33	...	1·78
13	Bombay City	644,405	7,263	6,633	13,896	18·17	25·88	21·56	109·51	...	19·85
14	Thána	847,424	8,614	7,850	16,464	19·61	19·23	19·43	109·73	...	5·31
	Gujarát Division.										
15	Surat	607,087	7,954	7,011	14,965	26·14	23·15	24·65	113·45	...	1·39
16	Broach	350,322	3,376	2,895	6,271	18·49	17·25	17·90	116·61	...	25·51
17	Kaira	782,733	8,578	7,150	15,728	20·46	19·66	20·09	119·97	...	19·37
18	Panch Mahála	240,743	2,337	2,127	4,464	18·50	18·58	18·54	109·87	...	57·11
19	Ahmedabad	829,637	8,582	7,643	16,225	19·55	19·55	19·55	112·28	...	21·79
	Sind Division.										
20	Kurrachee	423,495	1,979	1,353	3,332	8·24	7·38	7·87	146·27	...	9·31
21	Hyderabad	721,947	3,038	2,040	5,078	7·64	6·29	7·03	148·91	...	6·49
22	Thar and Párkar	180,761	1,991	1,448	3,439	19·28	19·44	19·02	137·50	...	1·73
23	Shikárpur	776,227	3,112	2,018	5,130	7·33	5·74	6·61	154·21	...	3·11
24	Upper Sind Frontier	89,985	398	273	671	7·49	6·91	7·48	145·79	...	0·58
	Total for the Presidency	16,181,741	128,848	114,405	243,253	15·25	14·81	15·04	112·80	...	17·90

ANNUAL FORM NO. II.—DEATHS *registered in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during the year* 1878.

1	2	3	4	5			6	7			8		
No.	DISTRICTS.	Area in square miles.	Average Population per square mile.	Number of Deaths registered.			Number of Males died to every 100 deaths of Females.	Ratio of Deaths per 1000 of the Population.			Mean Ratio of Deaths per 1000 during previous five years.		
				Male.	Female.	Total.		Male.	Female.	Total.	Male.	Female.	Total.
	Northern Deccan Division.												
1	Khándesh	10,162	101·22	19,334	17,120	36,454	112·93	36·44	34·38	35·44	21·66	19·43	20·58
2	Násik	7,156	96·05	14,481	12,439	26,920	116·42	41·09	37·14	39·17	24·37	22·54	23·49
3	Ahmednagar	6,647	116·43	14,938	13,017	27,955	114·76	37·78	34·38	36·12	27·19	24·11	25·69
4	Poona	5,099	177·93	16,094	13,513	29,607	119·10	34·48	30·68	32·63	23·79	21·69	22·76
5	Sholápur	4,509	159·24	14,488	12,160	26,648	119·64	39·23	34·87	37·11	27·02	23·71	25·41
	Southern Deccan Division.												
6	Sátára	4,804	220·86	21,694	19,178	40,872	113·12	40·22	36·76	38·52	27·37	24·79	26·[illegible]
7	Belgaum	4,592	204·43	23,299	20,909	44,208	111·43	48·65	45·47	47·08	37·80	32·63	35·28
8	Dhárwár	4,565	216·44	21,853	20,512	42,365	106·53	43·18	42·55	42·90	40·05	35·82	38·08
9	Kaládgi	5,696	143·26	12,745	11,464	24,209	111·17	30·52	28·77	29·67	37·94	32·04	35·06
	Konkan Division.												
10	Kánára	4,235	94·07	9,264	7,978	17,242	116·12	44·88	41·55	43·27	34·08	32·16	33·15
11	Ratnágiri	4,512	225·87	9,748	8,915	18,663	109·34	19·85	16·88	18·31	16·63	14·27	15·39
12	Kolába	1,504	232·85	3,504	3,161	6,665	110·85	19·68	18·34	19·02	14·67	12·84	13·77
13	Bombay City	22	29,291·13	14,460	12,226	26,686	118·27	36·17	49·96	41·41	25·18	39·40	31·81
14	Thána	4,052	209·14	11,488	9,474	20,962	121·26	26·15	23·16	24·74	22·59	21·00	21·90
	Gujarát Division.												
15	Surat	1,630	372·33	8,261	7,549	15,810	109·43	27·15	24·92	26·04	27·82	25·59	27·09
16	Broach	1,363	257·02	8,031	7,177	15,208	111·89	44·00	42·76	43·41	24·05	21·90	23·03
17	Kaira	1,561	501·43	17,921	12,969	30,890	138·18	42·75	35·66	39·46	23·74	22·01	23·04
18	Panch Mahals	1,644	146·44	10,884	7,330	18,214	148·48	86·17	64·05	75·63	17·02	15·57	16·33
19	Ahmedabad	3,844	215·80	18,342	15,963	34,305	114·90	41·80	40·83	41·34	24·77	23·72	24·23
	Sind Division.												
20	Kurrachee	14,092	30·05	4,413	2,862	7,275	154·19	18·37	15·61	17·18	13·99	13·11	13·57
21	Hyderabad	9,052	79·75	5,747	4,017	9,764	143·06	14·45	12·39	13·52	10·18	8·52	9·33
22	Thar and Párkar	12,729	14·20	2,106	1,646	3,752	127·95	20·39	21·24	20·75	8·22	7·86	8·08
23	Shikárpur	8,813	88·08	4,462	3,089	7,551	144·45	10·51	8·78	9·72	10·21	9·10	9·51
24	Upper Sind Frontier	1,913	48·37	440	286	726	153·84	8·71	7·24	8·06	8·88	8·22	8·50
	Total for the Presidency	124,196	130·29	287,997	244,954	532,951	117·57	34·05	31·72	32·94	24·66	22·79	23·79

ANNUAL FORM No. III.—DEATHS *registered in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each month of the year* 1878.

1	2	3												4	5
No.	DISTRICTS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total deaths registered during the year.	No.
	Northern Deccan Division.														
1	Khándesh	1,385	1,163	1,541	1,991	2,423	2,693	4,235	8,722	5,265	3,051	2,159	1,826	36,454	1
2	Násik	2,205	2,019	1,946	1,565	1,500	1,464	1,947	3,020	4,031	2,893	2,200	2,125	26,920	2
3	Ahmednagar	2,084	1,598	1,625	1,502	1,720	1,953	3,435	3,726	3,418	3,042	2,680	1,774	27,955	3
4	Poona	2,378	1,574	1,458	1,876	2,416	3,538	3,729	3,841	3,161	2,389	1,687	1,560	29,607	4
5	Sholápur	1,516	936	1,105	1,261	2,943	2,166	2,983	2,716	2,693	2,770	2,825	2,734	26,648	5
	Southern Deccan Division.														
6	Sátára	2,611	1,687	1,826	1,955	3,599	6,785	5,615	4,446	4,159	3,515	2,480	2,194	40,872	6
7	Belgaum	4,194	2,831	2,958	6,018	6,064	4,178	3,403	3,550	3,125	2,713	2,544	2,630	44,208	7
8	Dhárwár	5,495	3,420	2,991	3,419	3,829	3,555	3,336	3,974	3,077	2,544	3,363	3,462	42,365	8
9	Kaládgi	3,042	1,477	1,323	1,835	3,070	1,932	2,002	1,723	1,819	2,054	2,142	1,790	24,209	9
	Konkan Division.														
10	Kánara	2,060	1,580	1,423	1,306	1,242	1,136	1,400	1,680	1,521	1,287	1,315	1,292	17,242	10
11	Ratnágiri	1,592	1,397	1,542	1,531	1,359	1,208	1,738	1,758	1,633	1,492	1,596	1,827	18,683	11
12	Kolába	516	393	407	464	386	721	832	803	685	397	480	579	6,665	12
13	Bombay City	2,324	2,155	2,405	2,162	2,328	1,915	2,135	2,368	2,333	2,402	2,157	2,002	26,686	13
14	Thána	2,592	1,968	1,500	1,481	1,469	1,532	2,141	1,852	1,708	1,564	1,549	1,606	20,962	14
	Gujarát Division.														
15	Surát	1,114	947	991	1,203	1,124	1,254	1,301	1,414	1,414	1,562	1,814	1,672	15,810	15
16	Broach	509	593	833	966	1,040	1,039	979	1,224	1,499	2,038	2,660	1,828	15,208	16
17	Kaira	1,406	1,391	2,942	3,007	2,174	1,938	2,069	2,828	3,106	3,691	3,987	2,351	30,890	17
18	Panch Mahals	284	269	488	1,399	2,213	2,945	2,593	3,045	2,311	1,145	986	536	18,214	18
19	Ahmedabad	1,695	1,755	2,482	2,821	2,974	2,306	1,889	2,553	2,952	4,545	5,000	3,333	34,305	19
	Sind Division.														
20	Kurrachee	838	769	701	498	416	335	368	428	586	642	828	866	7,275	20
28	Hyderabad	840	887	703	564	479	454	461	431	749	1,234	1,499	1,463	9,764	21
22	Thar and Párkar	416	376	345	314	231	174	174	366	418	355	282	301	3,752	22
23	Shikárpur	603	588	475	494	522	486	592	397	627	857	1,082	828	7,551	23
24	Upper Sind Frontier	64	53	50	52	46	46	55	46	76	76	91	71	726	24
	Total for the Presidency	41,763	31,828	34,060	39,674	45,547	45,753	49,412	56,911	52,364	48 263	46,706	40,650	532,951	
	Ratio of deaths per 1000 in each month.	2·58	1·97	2·10	2·45	2·82	2·83	3·05	3·52	3·24	2·98	2·89	2·51	32·94	

ANNUAL FORM No. IV.—DEATHS *registered according to Age in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during the year* 1878.

1	2	3		4		5		6		7		8		9		10		11		12
No.	DISTRICTS.	Under 1 year.		1 year and under 6.		6 and under 12.		12 and under 20.		20 and under 30.		30 and under 40.		40 and under 50.		50 and under 60.		60 and upwards.		No.
		Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
	Northern Deccan Division.																			
1	Khándesh	3,288	2,685	5,702	5,279	1,501	1,170	890	924	1,533	1,777	1,393	1,266	1,500	1,100	1,702	1,285	1,825	1,634	1
2	Násik	1,879	1,598	2,662	2,437	1,460	1,228	1,301	1,121	1,585	1,651	1,450	1,232	1,293	932	1,433	1,036	1,418	1,204	2
3	Ahmednagar	1,669	1,310	2,463	2,197	989	866	757	768	1,798	1,729	1,593	1,262	1,726	1,357	1,963	1,644	1,380	1,884	3
4	Poona	1,014	821	2,357	2,037	1,206	985	1,002	971	1,788	1,651	2,106	1,662	2,007	1,553	2,170	1,649	2,444	2,184	4
5	Sholápur	667	551	2,212	1,843	1,190	1,055	786	688	1,599	1,413	1,872	1,446	1,864	1,433	2,165	1,785	2,133	1,946	5
	Southern Deccan Division.																			
6	Sátára	1,570	1,369	4,054	3,804	1,825	1,510	1,234	1,006	2,112	1,919	2,238	1,915	2,482	1,894	2,694	2,234	3,485	3,527	6
7	Belgaum	1,191	1,041	4,049	4,129	1,988	1,691	1,326	1,094	2,657	2,384	2,865	2,364	3,048	2,061	2,766	2,353	3,409	3,792	7
8	Dhárwár	1,382	1,218	3,855	3,654	1,720	1,596	1,260	1,273	2,504	2,442	2,501	2,220	2,773	2,268	3,083	2,771	2,795	3,070	8
9	Kaládgi	341	307	1,505	1,265	1,035	861	1,027	850	1,557	1,424	2,004	1,719	1,795	1,417	1,800	1,676	1,681	1,954	9
	Konkan Division.																			
10	Kánara	1,037	928	976	956	423	422	597	629	1,389	1,386	1,490	913	1,224	783	1,079	880	1,049	1,081	10
11	Ratnágiri	505	418	923	892	503	488	606	506	1,207	1,038	1,132	987	1,171	898	1,484	1,282	2,217	2,406	11
12	Kolába	399	340	560	546	260	261	239	266	443	435	401	319	434	295	403	328	365	371	12
13	Bombay City	3,414	3,003	2,239	2,419	499	565	796	975	2,330	1,680	1,737	981	1,293	677	1,018	812	1,134	1,614	13
14	Thána	1,077	944	1,831	1,640	782	641	592	603	1,725	1,592	1,672	1,084	1,419	864	1,359	1,012	1,031	1,094	14
	Gujarát Division.																			
15	Surat	1,294	1,128	1,609	1,607	472	494	421	400	814	765	882	689	815	547	805	661	1,149	1,258	15
16	Broach	1,178	1,137	2,187	2,067	528	425	359	335	587	632	746	574	863	508	787	667	796	832	16
17	Kaira	2,486	2,229	3,830	2,903	802	558	657	440	1,226	946	1,722	995	2,041	1,036	2,360	1,359	2,797	2,503	17
18	Panch Mahals	821	723	1,672	1,462	1,153	848	811	544	1,421	957	1,813	859	1,572	684	1,035	675	587	587	18
19	Ahmedabad	2,384	2,178	4,025	3,673	1,933	1,703	1,496	1,258	1,684	1,473	1,650	1,344	1,879	1,373	1,700	1,426	1,591	1,535	19
	Sind Division.																			
20	Kurrachee	585	473	351	301	212	134	304	240	478	399	642	355	604	266	47 0	199	767	495	20
21	Hyderabad	812	698	897	730	239	171	295	210	565	444	776	476	755	377	635	348	693	518	21
22	Thar and Párkar	301	341	250	240	96	84	108	83	209	177	201	160	246	112	266	172	429	277	22
23	Shikarpur	784	643	412	388	212	158	216	198	457	385	748	376	613	263	449	235	577	443	23
24	Upper Sind Frontier	82	42	27	24	20	17	53	32	53	20	68	34	50	32	53	52	33	33	24
	Total for the Presidency	30,160	26,125	50,648	46,493	21,048	17,931	17,127	15,414	31,721	28,719	33,701	25,214	33,468	22,730	33,659	26,541	36,385	35,737	
	Ratios per 1000 living	3·57	3·38	5·99	6·02	2·49	2·32	2·02	1·99	3·75	3·72	3·99	3·26	3·96	2·94	3·98	3·44	4·30	4·63	

N.B.—No information as to deaths by ages is available for Mirpur Khas R. C n Hyderabad District from January to June 1878.

ANNUAL FORM NO. V.—DEATHS *registered according to* CLASSES *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during the year* 1878.

1	2	3					4					5				
		Population according to Census of 1872.					Number of Deaths registered.					Ratio of Deaths per 1000 of Population.				
No.	DISTRICTS.	Mahomedans.	Hindus.	Christians.	Other Classes.	Total.	Mahomedans.	Hindus.	Christians.	Other Classes.	Total.	Mahomedans.	Hindus.	Christians.	Other Classes.	Total.
	Northern Deccan Division.															
1	Khándesh	79,359	948,279	517	487	1,028,642	2,788	33,591	1	74	36,454	35·13	35·42	1·93	151·95	35.44
2	Násik	31,663	646,790	1,063	7,837	687,353	1,860	24,728	25	307	26,920	58·74	38·23	23·51	31·52	39·17
3	Ahmednágar	42,435	729,367	941	1,195	773,938	1,653	26,070	55	177	27,955	38·95	35·74	58·44	148·12	36·12
4	Poona	39,583	862,465	3,862	1,625	907,235	1,171	28,023	82	331	29,607	29·58	32·53	21·23	203·70	32·63
5	Sholápur	50,655	660,985	319	75	718,034	2,047	24,235	2	364	26,648	40·33	36·33	6·26	..	37·11
	Southern Deccan Division.															
6	Sátára	34,957	10,25,349	600	96	1,061,002	1,375	39,369	11	126	40,872	39·33	38·39	18·33	..	38·52
7	Belgaum	71,386	862,215	5,067	82	938,750	3,395	40,489	202	122	44,208	47·56	46·96	39·86	..	47·08
8	Dhárwár	114,087	872,890	1,522	38	988,037	4,073	37,801	52	439	42,365	35·70	43·33	34·16	..	42·90
9	Kaládgi	87,399	728,585	52	1	816,037	2,090	21,777	14	328	24,209	23·91	29·89	275·00	..	29·67
	Konkan Division.															
10	Kánara	21,755	361,290	12,189	172	398,406	967	15,762	443	70	17,242	44·45	43·27	36·34	407·00	43·27
11	Ratnágiri	74,834	940,885	3,244	173	1,019,136	1,253	17,284	44	82	18,663	16·74	18·37	13·56	474·00	18·31
12	Kolába	17,191	330,914	208	2,089	350,405	368	6,197	3	97	6,665	21·41	18·72	14·42	46·43	19·02
13	Bombay City	137,644	423,801	34,724	48,236	644,405	6,759	17,687	919	1,321	26,686	49·10	41·73	26·46	27·39	41·41
14	Thána	38,535	765,286	37,029	5,674	847,424	918	19,161	789	94	20,962	23·64	25·02	21·23	16·57	24·73
	Gujarát Division.															
15	Surat	52,157	541,738	334	12,858	607,087	1,322	14,152	1	335	15,810	25·34	26·12	2·99	26·05	26·04
16	Broach	69,033	277,032	86	4,171	350,322	3,041	12,030	2	135	15,208	44·05	43·42	23·25	32·36	43·41
17	Kaira	70,741	711,619	305	68	782,733	2,633	28,209	15	33	30,890	37·22	39·64	49·18	485·29	39·46
18	Panch Máhals	14,921	225,775	30	17	240,743	478	17,569	..	167	18,214	32·03	77·81	..	..	75·65
19	Ahmedabad	81,573	747,047	650	587	829,637	4,096	29,612	11	586	34,305	50·33	39·63	16·92	..	41·34
	Sind Division.															
20	Kurrachee	347,551	72,517	2,643	784	423,495	5,517	1,653	44	35	*7,375	15·87	22·79	16·65	44·64	17·18
21	Hyderabad	558,272	101,613	391	60,671	721,947	6,794	2,862	13	95	9,764	12·17	27·89	33·25	1·57	13·52
22	Thar and Párkar	96,604	62,500	35	21,622	180,761	1,755	1,427	..	620	3,752	17·65	22·83	..	28·67	20·75
23	Shikárpur	628,662	146,482	238	845	776,227	5,106	2,406	4	35	7,551	8·12	16·42	16,81	41·42	9·72
24	Upper Sind Frontier	81,177	8,715	22	71	89,985	487	233	..	6	726	6·00	26·73	..	84·51	8·06
	Total of the Province	2,842,277	13,063,919	106,071	169,474	16,181,741	61,896	462,318	2,732	5,979	532,951	21·78	35·39	25·76	35·28	32·94

N. B.—"Hindus" include Jains as well as all castes professing Hinduism. "Other classes" include Parsis, Chinese, and Jews.
* Up to November 1878, 26 deaths took place in the cantonment of Kurrachee, of which no details by caste are available.

ANNUAL FORM NO. VI.—DEATHS *registered from* DIFFERENT CAUSES *in the* DISTRICT AND TOWNS *of the* BOMBAY PRESIDENCY *during the year* 1878.

1	2	3	4	5	6	7	8					9	10	11							12
							Injuries.							Ratio of Deaths per 1000 of Population.							
							Suicide.												From All Causes.		
No.	DISTRICTS AND TOWNS.	Population according to Census of 1872.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Males.	Females.	Wounding or Accident.	Snake-bite or killed by wild beasts.	Total.	All other causes.	Total deaths from all causes.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other causes.	For the year.	Mean of previous five years.	No.
	A.—DISTRICTS.																				
	Northern Deccan Division.																				
1	Khándesh	985,308	5,587	239	22,665	4,710	21	22	247	27	317	4,445	34,963	5·67	0·24	23·00	4·78	0·32	1·47	35·48	20·86	1
2	Násik	642,321	830	53	19,761	1,854	3	4	140	13	160	1,248	23,906	1·33	0·09	31·65	2·97	0·26	2·00	38·29	22·58	2
3	Ahmednagar	727,136	1,780	17	19,213	2,080	8	14	168	10	200	1,986	25,316	2·45	0·02	26·48	2·86	0·28	2·73	34·82	23·40	3
4	Poona	778,451	3,117	37	18,174	1,560	5	10	227	31	273	1,943	25,104	4·01	0·05	23·36	2·00	0·35	2·55	32·32	22·39	4
5	Sholápur	629,796	2,286	6	13,439	1,423	8	27	217	8	260	2,326	19,740	3·63	0·00	21·02	2·26	0·41	3·69	31·24	23·28	5
	Southern Deccan Division.																				
6	Sátára	1,014,046	4,859	39	26,425	3,850	30	46	350	37	463	2,997	38,633	4·79	0·04	26·05	3·80	0·47	2·96	38·10	26·19	6
7	Belgaum	882,273	5,614	89	23,950	2,349	51	76	249	41	417	9,007	41,426	6·36	0·10	27·14	2·66	0·47	10·21	46·95	34·77	7
8	Dhárwár	892,282	1,564	108	27,073	3,961	91	127	252	18	488	6,098	39,292	1·75	0·12	30·34	4·44	0·55	6·84	44·04	38·56	8
9	Kaládgi	809,445	2,198	18	16,868	514	68	97	251	31	447	3,886	23,931	2·71	0·02	20·84	0·63	0·55	4·80	29·56	34·66	9
	Konkan Division.																				
10	Kánara	374,211	74	68	11,181	1,458	19	23	200	36	278	8,549	16,608	0·19	0·18	29·87	3·89	0·74	9·48	44·38	31·94	10
11	Ratnágiri	993,526	559	98	10,474	1,716	15	14	259	150	438	4,882	18,167	0·56	0·09	10·54	1·71	0·44	4·99	18·28	15·03	11
12	Kolába	338,301	731	83	4,029	205	5	2	85	30	122	1,149	6,310	2·16	0·24	11·90	0·60	0·36	3·36	18·65	13·55	12
13	Thána	809,485	1,667	78	15,202	295	20	14	337	111	482	2,077	19,891	2·06	0·10	18·89	0·36	0·59	2·57	24·57	21·78	13
	Gujarát Division.																				
14	Surat	488,623	1,445	86	8,683	1,445	12	4	180	37	233	1,137	13,029	2·95	0·17	17·77	2·95	0·47	2·32	26·66	27·46	14
15	Broach	298,446	744	137	10,880	866	7	6	88	23	124	688	13,439	2·49	0·45	36·45	2·90	0·41	2·30	45·02	24·46	15
16	Kaira	719,305	1,433	1,012	22,741	2,565	11	14	242	52	319	1,020	29,090	1·99	1·40	31·61	3·56	0·44	1·41	40·44	23·09	16
17	Panch Mahals	218,630	3,875	151	8,478	1,496	5	6	102	22	135	1,881	16,016	17·72	0·69	*38·77	6·84	0·61	8·60	73·25	16·39	17
18	Ahmedabad	669,795	2,118	1,072	17,501	1,811	9	12	114	32	167	1,829	24,498	3·20	1·62	26·48	2·74	0·25	2·76	37·07	20·57	18
	Sind Division.																				
19	Kurrachee	369,969	..	11	5,033	93	4	7	204	70	285	646	6,068	..	0·03	13·60	0·25	0·77	1·75	16·40	13·66	19
20	Hyderabad	686,675	..	115	6,759	107	6	5	376	199	586	355	7,922	..	0·17	9·84	0·16	0·85	0·52	11·54	8·00	20
21	Thar and Párkar	176,762	26	17	3,272	38	3	2	35	31	71	213	3,637	0·15	0·10	18·51	0·21	0·40	1·20	20·57	7·86	21
22	Shikárpur	714,159	..	121	5,269	99	8	6	205	64	283	136	5,908	..	0·17	7·38	0·14	0·39	0·19	8·27	9·14	22
23	Upper Sind Frontier	84,780	..	2	426	7	..	2	34	3	39	20	494	..	0·02	5·03	0·08	0·46	0·24	5·83	7·23	23
	Total of Districts	14,294,346	40,507	3,657	317,626	34,502	409	540	4,562	1,076	6,587	50,509	4,53,388	2·83	0·26	22·22	2·41	0·46	3·53	31·72	23·12	

ANNUAL FORM NO. VI.—DEATHS *registered from* DIFFERENT CAUSES *in the* DISTRICTS *and* TOWNS *of the* BOMBAY PRESIDENCY *during the year* 1878—continued.

1	2	3	4	5	6	7	8					9	10	11							12
							Injuries.							Ratio of Deaths per 1000 of Population.							
							Suicide.												From All Causes.		
No.	Districts and Towns.	Population according to Census of 1872.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Male.	Female.	Wounding or Accident.	Snake-bite or killed by Wild Beasts.	Total.	All other Causes.	Total Deaths from All Causes.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other Causes.	For the year.	Mean of previous five years.	No.
	B.—TOWNS.																				
	Khándesh District.																				
1	Dhulia	12,489	110	..	158	42	..	..	2	..	2	33	345	8·81	..	12·65	3·36	0·16	2·64	27·62	15·10	1
2	Nándurbár	7,205	61	1	118	39	..	1	2	1	4	..	223	8·47	0·13	16·51	5·55	0·55	..	30·95	17·12	2
3	Chopra	13,699	163	..	198	2	2	..	7	..	9	1	373	11·90	..	14·45	0·14	0·64	0·07	27·22	14·45	3
4	Nasirabad	9,941	156	..	350	42	..	..	..	..	..	2	550	15·69	..	35·20	4·22	..	0·20	55·32	19·24	4
	Násik District.																				
5	Násik	22,436	37	..	914	85	..	..	11	..	11	712	1,759	1·65	..	40·73	3·78	0·49	31·73	78·40	44·66	5
6	Yeola	17,461	..	..	533	19	..	1	3	..	4	429	985	..	..	30·52	1·16	0·22	24·62	56·47	27·82	6
7	Deoláli Cantonment	894	..	..	23	5	..	..	..	..	..	1	29	..	..	25·74	5·59	..	1·11	32·46	18·58	7
8	Málegaon Cantonment	4,440	4	..	129	47	1	..	..	..	1	60	241	0·94	..	30·42	11·08	0·23	14·15	56·93	40·30	8
	Ahmednagar District.																				
9	Ahmednagar	32,841	420	4	734	59	..	1	7	..	8	899	2,124	12·80	0·12	22·35	1·79	0·24	27·37	64·67	31·99	9
10	Sangamner	9,978	61	..	219	16	..	..	2	..	2	63	361	6·11	..	21·95	1·60	0·20	6·31	36·18	25·92	10
11	Ahmednagar Cantonment	3,983	6	..	42	2	..	..	37	..	37	67	154	1·50	..	10·57	0·50	9·28	16·81	38·77	20·05	11
	Poona District.																				
12	Poona City	90,436	457	1	1,872	48	3	14	36	..	53	1,144	3,575	5·05	0·01	20·69	0·53	0·58	12·53	39·53	24·90	12
13	Junnar	10,298	1	..	80	10	..	..	..	..	..	20	111	0·10	..	7·76	0·90	..	1·90	10·77	17·50	13
14	Poona and Kirkee Cantonment	28,450	26	2	486	151	2	..	12	..	14	138	817	0·91	0·07	17·08	5·30	0·49	4·85	28·71	17·14	14
	Sholápur District.																				
15	Sholápur	53,403	309	27	2,917	215	4	5	33	1	43	947	4,458	5·79	0·57	54·62	4·02	0·80	17·73	83·47	25·84	15
16	Bársi	18,560	259	..	260	18	..	1	17	..	18	523	1,078	13·95	..	14·00	0·91	0·91	28·10	53·77	26·46	16
17	Pándharpur	16,275	220	..	407	574	2	..	3	..	5	166	1,372	13·52	..	25·00	35·27	0·30	10·19	84·30	36·81	17
	Sátára District.																				
18	Sátára	24,484	166	11	492	243	..	2	3	..	5	281	1,198	6·78	0·45	20·12	9·92	0·20	11·48	48·93	29·74	18
19	Karád	11,410	136	..	170	15	1	..	3	1	5	110	436	11·92	..	14·90	1·31	0·44	9·65	38·21	19·38	19
20	Wái	11,062	225	..	264	13	..	..	3	..	3	100	605	20·34	..	23·86	1·17	0·27	9·04	54·69	27·36	20
	Belgaum District.																				
21	Belgaum	26,947	67	..	795	99	..	8	9	..	17	414	1,392	2·49	..	29·50	3·67	0·63	15·37	51·66	28·73	21
22	Gokák	12,612	42	..	297	8	4	4	1	..	9	185	541	3·33	..	23·55	0·63	0·71	14·67	42·89	27·46	22
23	Athni	11,588	6	16	221	18	2	2	7	2	13	158	432	0·52	1·38	19·07	1·56	1·12	13·64	37·29	27·39	23
24	Belgaum Cantonment	5,330	28	..	118	66	..	..	7	..	7	198	417	5·25	..	22·14	12·38	1·31	37·15	78·23	32·87	24
	Dhárwár District.																				
25	Dhárwár	27,136	73	..	480	20	5	5	7	..	17	190	780	2·69	..	17·69	0·74	0·63	7·00	28·75	25·37	25
26	Hubli	37,961	144	..	982	78	9	19	8	..	36	230	1,470	3·80	..	25·87	2·05	0·95	6·06	38·73	30·93	26
27	Gadag-Bettigeri	19,035	9	..	316	7	2	6	15	..	23	163	518	0·47	..	16·60	0·37	1·21	8·56	27·21	18·26	27
28	Ránnebennur	11,623	..	1	231	6	5	5	3	..	13	54	305	..	..	19·87	0·53	1·12	4·65	26·24	26·76	28
	Kaládgi District.																				
29	Kaládgi	6,592	31	..	4	..	1	..	3	1	5	235	275	4·70	..	0·61	..	0·76	35·65	41·72	11·41	29
30	Kaládgi Cantonment	..	1	..	..	2	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	30
	Kánara District.																				
31	Kárwár	13,263	..	..	247	7	..	..	8	1	9	158	421	..	..	18·62	0·52	0·67	11·91	31·74	18·71	31
32	Kumta	10,932	..	..	114	36	..	..	4	..	4	59	213	..	..	10·42	3·29	0·36	5·39	19·48	17·08	32
	Ratnágiri District.																				
33	Vingorla	14,996	..	..	90	105	3	1	7	1	12	62	269	..	..	6·00	7·00	0·80	4·13	17·93	10·44	33
34	Ratnágiri	10,614	..	..	103	30	..	..	6	1	7	87	227	..	..	9·70	2·82	0·65	8·19	21·38	11·19	34
	Kolába District.																				
35	Alibág	5,473	21	2	132	5	..	..	..	..	..	70	230	3·84	0·36	24·10	0·91	..	12·79	42·02	24·62	35
36	Mahád	6,631	35	1	52	5	..	..	..	..	..	32	125	5·28	0·15	7·84	0·75	..	4·82	18·83	18·83	36
	Thána District.																				
37	Thána	14,299	75	..	289	5	..	1	5	2	8	25	402	5·25	..	20·21	0·35	0·56	1·75	28·12	28·17	37
38	Kalyán	12,804	58	3	267	1	1	..	9	..	10	79	418	4·53	0·23	20·85	0·08	0·78	6·17	32·65	24·78	38
39	Panvel	10,836	9	..	169	45	..	..	5	..	5	23	251	0·83	..	15·60	4·16	0·46	2·12	23·17	28·57	39
	Bombay District.																				
40	Bombay City	644,405	1,165	353	9,905	3,028	45	33	275	6	359	11,876	26,686	1·81	0·55	15·37	4·70	0·56	18·43	41·41	31·81	40
	Surat District.																				
41	Surat	107,149	281	5	1,641	24	1	1	20	..	22	661	2,634	2·62	0·04	15·31	0·22	0·20	6·15	24·58	24·61	41
42	Bulsar	11,315	..	..	118	24	..	1	4	..	5	..	147	..	..	10·43	2·12	0·44	..	12·99	20·87	42
	Broach District.																				
43	Broach	36,932	106	10	957	16	..	..	24	2	26	305	1,420	2·87	0·27	25·91	0·43	0·70	8·25	38·44	18·11	43
44	Jumbusar	14,924	177	7	119	45	..	..	1	..	1	..	349	11·86	0·46	7·97	3·01	0·06	..	23·38	10·02	44
	Kaira District.																				
45	Kaira	12,681	24	2	51	12	..	..	..	..	..	19	108	1·89	0·15	4·02	0·94	..	1·49	8·51	19·52	45
46	Nadiád	24,551	71	13	441	317	..	2	6	1	9	4	855	2·90	0·52	17·96	12·91	0·36	0·16	34·82	23·56	46
47	Borsad	12,214	13	32	237	8	..	..	10	..	10	11	315	1·39	2·61	19·40	0·65	0·81	0·90	25·79	22·09	47
48	Kapadvanj	13,982	45	2	445	..	1	..	3	..	4	22	522	3·50	0·14	31·82	..	0·28	1·57	37·33	27·09	48

Annual Form No. VI.—DEATHS *registered from* Different Causes *in the* Districts *and* Towns *of the* Bombay Presidency *during the year* 1878—*continued.*

No.	Districts and Towns.	Population according to Census of 1872.	Cholera.	Small-pox.	Fevers.	Bowel complaints.	Injuries. Suicide. Male.	Suicide. Female.	Wounding or Accident.	Snake-bite or killed by wild beasts.	Total.	All other causes.	Total deaths from all causes.	Ratio of Deaths per 1000 of Population. Cholera.	Small-pox.	Fevers.	Bowel complaints.	Injuries.	All other causes.	From All Causes. For the year.	From All Causes. Mean of previous five years.	No.
	B. TOWNS—continued.																					
	Panch Mahâls District.																					
49	Godhra	10,541	34	43	250	463	..	..	6	1	7	163	960	3·19	4·04	23·50	43·53	0·65	15·32	90·26	21·10	49
50	Dohad	11,472	221	15	452	25	1	..	10	..	11	514	1,238	19·26	1·30	39·40	2·17	0·95	44·80	107·91	19·82	50
	Ahmedabad District.																					
51	Ahmedabad	116,873	503	8	5,277	268	3	3	3	2	11	2,387	8,452	4·30	0·06	45·15	2·27	0·09	20·42	72·31	49·63	51
52	Gogha	9,571	29	14	190	38	..	..	3	..	3	126	400	3·03	1·46	19·85	3·97	0·31	13·16	41·79	13·37	52
53	Viramgâm	19,661	111	43	319	65	..	..	4	..	4	29	571	5·64	2·18	16·22	3·30	0·20	1·47	29·04	25·24	53
54	Dholka	20,854	30	19	146	18	..	2	7	1	10	16	240	1·44	0·91	7·00	0·91	0·47	0·76	11·50	15·60	54
55	Ahmedabad Cantonment	1,883	2	2	85	28	..	..	..	..	..	27	144	1·06	1·06	45·14	14·86	..	14·33	76·47	47·14	55
	Kurrachee District.																					
56	Kurrachee	55,326	..	..	790	4	..	1	16	..	17	396	1,207	..	..	14·28	0·07	0·31	7·16	21·82	*17·55	56
	Hyderabad District.																					
57	Hyderabad	35,272	..	..	1,523	..	1	..	7	..	8	311	1,842	..	..	43·18	..	0·23	8·82	52·22	38·61	57
	Thar and Párkar District.																					
58	Umarkot	3,999	..	..	107	..	..	1	1	..	2	6	115	..	..	26·76	..	0·50	1·50	28·76	†26·37	58
	Shikárpur District.																					
59	Shikárpur	38,107	..	130	963	18	..	..	13	..	13	30	1,154	..	3·41	25·27	0·47	0·34	0·79	30·28	23·16	59
60	Sukkur	13,318	..	2	141	71	..	..	14	..	14	55	283	..	0·15	10·59	5·33	1·05	4·13	21·25	19·88	60
61	Lárkhána	10,643	..	47	144	..	..	..	7	..	7	8	206	..	4·42	13·53	..	0·66	0·75	19·36	11·66	61
	Upper Sind Frontier District.																					
62	Jacobabad	5,205	..	2	176	4	..	..	1	..	1	49	232	..	0·39	33·81	0·77	0·19	9·41	44·57	35·75	62
	Total of Towns	1,887,395	6,436	818	39,750	6,663	99	120	720	24	963	25,133	79,563	3·30	0·44	21·06	3·53	0·51	13·32	42·16	25·96	
	Total for the Presidency	16,181,741	46,743	4,475	357,376	41,165	508	660	5,282	1,100	7,550	75,642	532,951	2·89	0·28	22·08	2·54	0·47	4·68	32·94	23·79	

N.B.— Districts A. in this statement do not include the population or deaths of Towns B. In all the other statements "Districts" includes Towns. Towns include one or more of the principal Towns in each District.

* No separate information is available for the towns of Kurrachee and Umarkot for 1873. The deaths therefore in them for that year cannot be distinguished, and consequently they are included in the total for the districts of Kurrachee and Thar and Párkar.

† Mean ratio for previous four years only.

Annual Form No. VII.—DEATHS *registered from* Cholera *in the* Districts *of the* Bombay Presidency *during each month of the year* 1878.

No.	Districts.	Circles of Registration. Number in each District.	Circles of Registration. Number from which deaths from Cholera were reported.	Villages. Number in each District.	Villages. Number from which Cholera were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total. Male.	Total. Female.	Total. Total.	Ratio of Deaths per 1000 of Population. Male.	Female.	Total.	Mean ratio per 1000 of previous five years.	No.
	Northern Deccan Division.																								
1	Khándesh	26	26	2,625	512	..	..	..	..	5	389	1,525	3,356	725	1	53	23	2,999	3,078	6,077	5·65	6·18	5·91	1·54	1
2	Násik	15	13	1,629	92	..	..	..	..	..	..	18	257	499	81	16	..	441	430	871	1·25	1·31	1·27	1·43	2
3	Ahmednagar	14	14	1,343	175	..	..	..	3	98	365	1,034	546	180	41	..	..	1,153	1,114	2,267	2·91	2·93	2·93	2·26	3
4	Poona	11	11	1,187	223	2	14	7	229	568	1,292	933	396	145	15	..	..	1,986	1,615	3,601	4·25	3·66	3·97	1·98	4
5	Sholápur	10	10	667	222	..	..	..	116	1,189	705	909	155	..	..	..	..	1,776	1,298	3,074	4·80	3·72	4·28	1·95	5
	Southern Deccan Division.																								
6	Sátára	15	15	1,352	398	..	..	..	52	837	3,157	1,195	94	49	2	..	..	2,987	2,399	5,386	5·54	4·60	5·08	2·31	6
7	Belgaum	11	11	1,085	322	259	131	349	2,492	1,979	479	63	1	13	..	..	..	3,057	2,700	5,757	6·38	5·87	6·13	3·38	7
8	Dhárwár	18	16	1,407	115	..	..	156	396	411	291	161	314	61	..	..	..	965	825	1,790	1·97	1·71	1·81	3·62	8
9	Kaládgi	10	10	1,201	176	16	..	59	360	987	481	290	37	..	..	..	..	1,227	1,003	2,230	2·94	2·54	2·73	3·29	9
	Konkan Division.																								
10	Kánara	13	6	972	14	32	11	2	3	12	2	..	..	6	6	..	..	45	29	74	0·22	0·15	0·19	1·88	10
11	Ratnágiri	10	6	1,249	54	59	86	49	19	29	75	147	47	12	10	35	..	249	310	559	0·51	0·58	0·55	0·83	11
12	Kolába	8	7	915	89	12	..	..	..	2	321	206	198	47	1	..	..	370	417	787	2·08	2·42	2·25	1·51	12
13	Bombay City	1	1	..	..	35	109	224	128	137	99	156	116	43	53	40	25	734	431	1,165	1·84	1·76	1·81	1·18	13
14	Thána	14	13	2,129	139	172	149	18	64	142	361	463	260	24	62	54	40	873	936	1,809	1·99	2·29	2·13	2·43	14
	Gujarát Division.																								
15	Surat	10	9	853	167	90	100	31	225	299	432	211	52	73	157	56	..	874	852	1,726	2·87	2·81	2·84	1·00	15
16	Broach	8	8	407	114	2	5	96	169	308	312	115	19	..	1	..	..	545	482	1,027	2·98	2·87	2·93	1·07	16
17	Kaira	11	11	557	202	25	7	404	560	357	190	50	..	1	..	..	..	956	638	1,594	2·28	1·75	2·03	0·92	17
18	Panch Mahâls	7	7	638	347	33	4	85	926	1,458	1,379	222	22	1	..	..	..	2,295	1,835	4,130	18·17	16·03	17·15	1·26	18
19	Ahmedabad	12	12	888	227	7	..	99	654	1,146	629	193	58	3	4	..	..	1,533	1,260	2,793	3·49	3·22	3·36	0·99	19
	Sind Division.																								
20	Kurrachee	14	..	3,328	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	..	..	..	0·02	20
21	Hyderabad	14	..	5,967	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	..	..	..	..	21
22	Thar and Párkar	8	1	1,585	3	..	..	7	19	..	..	..	..	..	..	..	..	11	15	26	0·11	0·19	0·14	0·10	22
23	Shikárpur	20	..	4,638	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	..	..	..	..	23
24	Upper Sind Frontier	4	..	1,015	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	..	..	..	..	24
	Total for the Presidency	284	207	37,623	3,543	735	616	1,586	6,415	9,964	10,950	7,891	5,928	1,882	434	254	88	25,076	21,667	46,743	2·96	2·82	2·89	1·66	

ANNUAL FORM NO. VIII.—DEATHS *registered from* SMALL-POX *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each month of the year* 1878.

No.	District.	Circles of Registration.		Villages.		5												6			7		8			9	No.
		Number in each District.	Number from which deaths from Small-pox were reported.	Number in each District.	Number from which deaths from Small-pox were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total. Male.	Total. Female.	Total. Total.	No. of deaths among Children. Under 1 Year.	No. of deaths among Children. Under 12 Years.	Total Ratio of Deaths per 1000 of Population. Male.	Total Ratio of Deaths per 1000 of Population. Female.	Total Ratio of Deaths per 1000 of Population. Total.	Mean ratio per 1000 of previous five years.	
	Northern Deccan Division.																										
1	Khándesh	26	14	2,625	84	14	21	38	95	30	7	9	1	2	..	..	23	144	96	240	27	124	0·27	0·19	0·23	1·46	1
2	Násik	15	9	1,629	27	6	7	3	3	5	9	1	1	11	3	2	2	27	26	53	20	17	0·07	0·07	0·07	1·24	2
3	Ahmednagar	14	5	1,342	9	..	..	3	3	..	11	2	..	1	1	..	..	5	16	21	..	6	0·01	0·04	0·02	0·72	3
4	Poona	11	6	1,184	19	9	1	2	7	1	6	..	3	1	6	4	..	19	21	40	13	12	0·04	0·04	0·04	0·61	4
5	Sholápur	10	4	647	6	8	1	20	..	..	2	..	1	..	1	..	..	9	24	33	2	29	0·02	0·07	0·04	0·41	5
	Southern Deccan Division.																										
6	Sátára	15	7	1,352	14	2	10	5	1	24	1	1	1	5	..	..	..	23	27	50	21	23	0·04	0·05	0·05	0·34	6
7	Belgaum	11	8	1,085	30	33	22	14	18	..	4	4	..	4	4	1	1	57	48	105	24	52	0·12	0·09	0·11	0·73	7
8	Dhárwár	18	7	1,407	32	22	24	26	21	5	5	1	..	2	..	..	3	53	56	109	19	68	0·14	0·11	0·11	1·01	8
9	Kaládgi	10	6	1,201	9	4	..	2	..	3	..	1	4	2	..	1	1	9	9	18	4	5	0·02	0·03	0·02	0·96	9
	Konkan Division.																										
10	Kánara	13	6	972	32	31	10	11	4	6	4	2	..	..	..	..	..	37	31	68	4	29	0·18	0·16	0·17	0·68	10
11	Ratnágiri	10	7	1,249	37	12	7	17	12	18	7	3	3	9	6	2	1	43	55	98	12	30	0·09	0·10	0·10	0·69	11
12	Kolába	8	7	915	17	2	1	14	11	8	12	29	7	2	..	..	..	38	48	86	19	43	0·21	0·28	0·24	0·62	12
13	Bombay City	1	1	..	..	24	38	67	78	64	43	29	6	..	1	..	3	164	189	353	131	181	0·41	0·77	0·55	1·61	13
14	Thána	14	10	2,129	21	12	6	17	11	13	12	6	2	2	..	..	..	41	40	81	18	50	0·09	0·10	0·10	1·97	14
	Gujarát Division.																										
15	Surat	10	5	853	28	8	6	40	17	14	3	2	..	..	..	..	1	48	43	91	32	33	0·15	0·14	0·14	1·19	15
16	Broach	8	6	407	45	23	53	29	24	16	6	3	..	..	..	..	..	80	74	154	51	71	0·43	0·44	0·43	0·75	16
17	Kaira	11	11	577	184	54	153	422	288	114	25	5	..	..	..	..	..	601	460	1,061	467	556	1·43	1·26	1·35	0·58	17
18	Panch Mahals ..	7	7	638	61	8	12	26	56	63	18	20	3	..	..	..	3	118	91	209	92	105	0·93	0·79	0·86	0·18	18
19	Ahmedabad	12	11	888	167	159	284	376	196	102	30	11	..	..	..	..	..	624	534	1,158	559	557	1·42	1·36	1·39	0·31	19
	Sind Division.																										
20	Kurrachee	14	4	3,328	8	3	1	2	5	..	..	..	..	..	..	..	..	8	3	11	.	3	0·03	0·02	0·03	0·15	20
21	Hyderabad	14	10	5,967	47	25	13	8	8	17	13	3	..	2	1	..	25	62	53	115	12	52	0·16	0·16	0·16	0·13	21
22	Thar and Párkar ..	8	5	1,585	12	2	2	1	5	2	3	2	..	..	..	..	..	10	7	17	3	7	0·10	0·09	0·10	0·05	22
23	Shikárpur	20	18	4,638	73	16	22	19	41	65	62	50	11	1	3	2	8	160	140	300	82	142	0·38	0·40	0·39	0·02	23
24	Upper Sind Frontier ..	4	3	1,015	3	..	..	..	..	1	..	..	2	..	1	..	..	1	3	4	..	3	0·02	0·08	0·04	0·02	24
	Total for the Presidency	284	177	37,633	965	477	694	1,162	905	571	283	184	45	44	27	12	71	2,381	2,094	4,475	1612	2198	0·28	0·27	0·28	0·69	

ANNUAL FORM NO. IX.—DEATHS *registered from* FEVERS *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each month of the year* 1878.

No.	District.	Circles of Registration.		Villages.		5												6			7		8	9	No.
		Number in each District.	Number from which deaths from Fevers were reported.	Number in each District.	Number from which deaths from Fevers were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total. Male.	Total. Female.	Total. Total.	Ratio of Deaths per 1000 of Population. Male.	Ratio of Deaths per 1000 of Population. Female.	Ratio of Deaths per 1000 of Population. Total.	Mean ratio per 1000 for previous five years.	
	Northern Deccan Division.																								
1	Khándesh	26	26	2,625	2,625	1,093	941	1,186	1,487	1,689	1,645	2,050	3,905	3,541	2,591	1,813	1,548	12,534	10,955	23,489	23·62	21·99	22·54	11·53	1
2	Násik	15	15	1,629	1,629	1,920	1,656	1,673	1,328	1,239	1,175	1,557	2,108	2,690	2,365	1,814	1,835	11,475	9,885	21,360	32·55	29·51	31·07	15·36	2
3	Ahmednagar	14	14	1,342	1,342	1,758	1,362	1,358	1,202	1,242	1,191	1,847	2,435	2,429	2,322	1,659	1,443	10,800	9,448	20,248	27·31	24·92	26·16	16·10	3
4	Poona	11	11	1,184	1,184	2,108	1,327	1,230	1,374	1,466	1,823	2,114	2,586	2,246	1,847	1,271	1,220	11,101	9,501	20,612	23·84	21·57	22·71	14·49	4
5	Sholápur	10	10	647	647	1,140	712	824	935	1,319	1,014	1,377	1,767	1,896	1,928	2,124	2,077	9,158	7,865	17,023	24·80	22·55	23·70	13·42	5
	Southern Deccan Division.																								
6	Sátára	15	15	1,352	1,345	2,164	1,414	1,547	1,585	2,249	2,784	3,350	3,022	2,894	2,583	1,953	1,806	14,347	13,004	27,351	26·60	24·93	25·77	17·09	6
7	Belgaum	11	11	1,085	1,014	2,610	1,849	1,687	2,389	2,965	2,641	2,112	2,102	1,809	1,612	1,712	1,911	13,325	12,056	25,381	27·82	26·44	27·12	14·37	7
8	Dhárwár	18	18	1,407	1,200	4,064	2,562	2,040	2,272	2,536	2,199	2,104	2,363	1,923	1,712	2,477	2,830	14,816	14,266	29,082	29·28	29·60	29·43	11·01	8
9	Kaládgi	10	9	1,201	1,085	2,361	1,136	963	1,128	1,554	1,107	1,215	1,141	1,368	1,576	1,814	1,509	8,881	7,991	16,872	21·26	20·06	20·67	18·04	9
	Konkan Division.																								
10	Kánara	13	13	972	972	1,423	1,103	975	884	894	712	963	1,080	974	860	871	893	6,015	5,527	11,542	29·14	28·80	28·97	17·01	10
11	Ratnágiri	10	10	1,249	1,115	923	785	885	914	800	689	938	973	946	828	912	1,074	5,546	5,121	10,667	11·29	9·70	10·47	7·45	11
12	Kolába	8	8	915	915	399	326	318	338	286	208	381	353	419	280	397	448	2,231	1,982	4,213	12·53	11·50	12·02	8·37	12
13	Bombay City ..	1	1	..	..	917	864	885	895	1,007	748	749	816	777	754	741	752	5,473	4,432	9,905	13·69	18·11	15·37	10·83	13
14	Thána	14	14	2,129	2,129	2,196	1,636	1,283	1,217	1,109	899	1,224	1,175	1,396	1,224	1,298	1,360	8,841	7,176	16,017	20·13	17·57	18·90	17·98	14
	Gujarát Division.																								
15	Surat	10	10	853	730	738	596	666	682	585	560	810	994	970	1,076	1,418	1,347	5,387	5,055	10,442	17·70	16·69	17·20	18·05	15
16	Broach	8	8	407	390	412	452	575	595	548	565	681	986	1,249	1,860	2,441	1,592	6,283	5,673	11,956	34·42	33·89	34·12	17·84	16
17	Kaira	11	11	577	570	1,049	1,025	1,804	1,722	1,356	1,360	1,654	2,186	2,586	3,328	3,703	2,132	13,803	10,112	23,915	32·93	27·81	30·55	17·17	17
18	Panch Mahals ..	7	7	638	514	221	233	345	357	527	762	1,253	1,614	1,466	999	919	484	5,537	3,653	9,180	43·75	31·92	38·13	13·66	18
19	Ahmedabad	12	12	888	690	1,133	1,079	1,499	1,519	1,250	1,172	1,140	1,595	2,151	3,816	4,332	2,832	12,497	11,021	23,518	28·48	28·19	28·34	16·28	19
	Sind Division.																								
20	Kurrachee	14	14	3,328	2,289	694	654	524	376	288	220	233	306	467	540	736	791	3,539	2,284	5,323	14·73	12·45	13·75	10·57	20
21	Hyderabad	14	14	5,967	2,240	713	742	598	472	373	284	278	289	607	1,136	1,430	1,360	4,805	3,477	8,282	12·08	10·73	11·47	7·68	21
22	Thar and Párkar ..	8	8	1,585	1,171	375	344	305	261	192	149	150	320	396	338	270	279	1,888	1,491	3,379	18·28	19·24	18·69	6·78	22
23	Shikárpur	20	20	4,638	2,054	540	519	411	400	408	355	458	303	549	805	1,007	762	3,807	2,710	6,517	8·97	7·71	8·39	8·55	23
24	Upper Sind Frontier .	4	4	1,015	138	53	48	43	49	37	37	36	24	68	70	78	59	349	253	602	6·91	6·40	6·69	7·29	24
	Total for the Presidency	284	283	37,633	27,988	31,004	23,375	23,624	24,372	25,829	24,359	28,674	34,443	35,718	30,450	37,184	32,344	192,438	164,938	357,376	22·75	21·36	22·08	14·06	

ANNUAL FORM NO. X.—DEATHS *registered from* BOWEL COMPLAINTS *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each month of the year* 1878.

1	2	3		4		5												6			7			8	
No.	DISTRICTS.	CIRCLES OF REGISTRATION.		VILLAGES.														TOTAL.			RATIO OF DEATHS PER 1000 OF POPULATION.			Mean ratio per 1000 for previous five years.	No.
		Number in each district.	No. from which deaths from bowel complaints were reported.	Number in each district.	No. from which deaths from bowel were complaints reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Male.	Female.	Total.	Male.	Female.	Total.		
	Northern Deccan Division																								
1	Khándesh	26	26	2,625	1,375	218	152	247	273	345	353	465	1,156	826	396	228	176	2,671	2,164	4,835	5·03	4·34	4·73	2·81	1
2	Násik	15	15	1,629	706	94	181	109	119	125	130	169	303	334	187	164	97	1,166	844	2,010	3·30	2·52	2·92	2·10	2
3	Ahmednagar	14	13	1,342	353	139	96	109	108	126	133	222	329	326	271	164	134	1,254	903	2,157	3·17	2·38	2·78	2·98	3
4	Poona	11	11	1,184	407	97	70	65	75	116	126	263	318	223	178	130	108	1,044	725	1,769	2·68	1·64	1·94	1·95	4
5	Sholápur	10	10	647	522	85	70	83	81	187	201	308	303	180	255	169	308	1,218	1,012	2,230	3·29	2·89	3·11	2·93	5
	Southern Deccan Division.																								
6	Sátára	15	15	1,352	423	230	122	110	145	224	455	545	746	660	468	243	173	2,228	1,893	4,121	4·13	3·63	3·83	3·25	6
7	Belgaum	11	11	1,085	381	245	134	192	177	203	197	247	291	288	228	166	172	1,347	1,193	2,540	2·81	2·60	2·71	3·16	7
8	Dhárwár	18	18	1,407	635	539	330	292	275	305	390	336	403	373	320	286	223	2,230	1,842	4,072	4·41	3·82	3·12	6·17	8
9	Kaládgi	10	9	1,201	177	55	40	24	38	71	37	40	48	55	43	34	31	280	236	516	0·67	0·59	0·63	2·42	9
	Konkan Division.																								
10	Kánára	13	13	972	508	137	111	95	103	117	140	114	193	172	119	115	85	894	607	1,501	4·33	3·16	3·76	3·35	10
11	Ratnágiri	10	10	1,249	464	130	136	134	140	117	98	149	161	181	177	177	251	1,045	806	1,851	2·12	1·52	1·82	1·47	11
12	Kolába	8	8	915	61	16	5	18	11	6	23	33	41	21	13	10	18	134	81	215	0·75	0·47	0·61	0·58	12
13	Bombay City	1	1	..	..	217	210	202	139	179	177	224	343	337	337	337	306	1,727	1,301	3,028	4·32	3·32	4·70	3·36	13
14	Thána	14	14	2,129	86	28	14	26	18	19	31	65	37	35	26	22	25	217	129	346	0·49	0·31	0·41	0·60	14
	Gujarát Division.																								
15	Surat	10	10	853	360	114	95	107	127	84	115	111	170	154	126	146	144	829	664	1,493	2·72	2·19	2·45	2·16	15
16	Broach	8	8	407	114	34	16	55	67	51	76	86	121	113	84	126	98	482	445	927	2·64	2·65	2·64	1·10	16
17	Kaira	11	10	577	305	168	138	210	299	241	250	243	477	348	237	157	134	1,731	1,171	2,902	4·13	3·22	3·70	2·43	17
18	Panch Mahals	7	7	638	123	7	7	8	16	64	454	246	572	476	57	44	33	1,211	773	1,984	9·58	6·75	8·24	0·57	18
19	Ahmedabad	12	12	888	234	77	53	120	118	112	143	109	331	347	309	309	199	1,206	1,021	2,227	2·74	2·61	2·68	1·31	19
	Sind Division.																								
20	Kurrachee	14	13	3,328	66	8	13	17	6	4	5	7	5	12	9	3	8	52	45	97	0·22	0·25	0·23	0·15	20
21	Hyderabad	14	13	5,967	67	4	15	6	7	8	6	3	11	13	15	9	10	62	45	107	0·16	0·14	0·15	0·08	21
22	Thar and Párkar ..	8	7	1,585	31	6	10	4	3	2	5	1	4	..	..	2	3	24	14	38	0·23	0·18	0·21	0·27	22
23	Shikárpur	20	18	4,638	53	11	12	5	20	10	11	15	14	19	23	29	19	141	47	188	0·33	0·13	0·24	0·25	23
24	Upper Sind Frontier ..	4	3	1,015	4	1	2	..	..	2	2	..	..	4	..	..	..	11	..	11	0·22	..	0·12	0·24	24
	Total for the Presidency.	284	275	37,633	7,455	2,660	2,032	2,238	2,385	2,718	3,558	4,001	6,375	5,495	3,878	3,070	2,755	23,204	17,961	41,165	2·74	2·33	2·54	1·55	

A.—VACCINE DEPARTMENT.

Statement No. I. showing particulars of Vaccination in the Bombay Presidency during the year 1878-79.

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average Population per Square Mile	Average number of Vaccinators employed throughout the season.	Total number of Persons Vaccinated.	Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccinations.				Re-vaccination.		Percentage of successful cases.		Persons successfully Vaccinated per 1000 of Population.	Average annual number of Persons successfully Vaccinated during previous five years.		Average annual number of Death from Small-pox during previous five years.	
							Total.	Successful.			Total	Successful.	Primary.	Re-vaccination.		No.	Ratio per 1000.	No.	Ratio per 1000.
								Under 1 year.	Over 1 and under 6 years.	Total of all Ages									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	THE NORTHERN DECCAN REGISTRATION DISTRICT.				Males. Females. Total.														
	KHA'NDESH COLLECTORATE—																		
1	Dhulia Town	12,489	1248·90	1	339 290 629	629	629	442	143	611	..	..	97·14	..	48·92	827	66·22	9	0·72
2	Nandurbár Town	7,205	554·23	..	.. .. Vide	Statement	No. III.	..	..	..	..	..	..	..	..	26	3·61	11	1·53
3	Chopda Town Local Fund	13,699	595·61	..	71 73 144	..	144	116	28	144	..	..	100	..	10·51	58	4·23	19	1·39
4	Nasirabad Town do.	9,941	584·76	..	.. .. ..	..	..	..	..	..	..	..	..	..	..	93	9·36	10	1·01
5	In the 22 Rural Circles, do.	985,308	97·56	18	P. 13,846 13,774 27,620 R. 51 7 58	1,538	27,844	13,174	11,316	26,938	58	56	93·91	96·55	26·24	26,430	26·82	1499	1·52
	Tota	1,028,642	101·22	19	P. 14,356 14,137 28,893 R. 51 7 58	1,497	28,617	13,732	11,487	27,693	58	56	97·53	96·55	26·98	27,434	26·67	1548	1·50
	NA'SIK COLLECTORATE—																		
6	Yeola Town	17,461	8730·50	..	.. .. Vide	Statement	No. III.	..	..	..	..	..	..	..	..	74	4·24	37	2·12
7	Násik do.	22,436	1121·80	1	P. 293 367 660 R. 104 31 135	795	660	449	186	635	135	74	96·21	54·81	31·60	710	31.65	45	2·01
8	Deválí Cantonment Local Fund	894	..	..	7 2 9	..	9	5	1	6	..	..	66·67	..	6·71	35	39·15	..	..
9	Málegaon Cantonment do.	4,240	4240	..	54 34 88	..	89	73	4	77	..	..	87·50	..	18·15	44	10·38	..	..
10	In the 11 Rural Circles do.	642,322	89·82	11	P. 6,951 6,744 13,695 R. 30 .. 30	1,248	13,784	9,404	3,411	12,893	30	15	94·22	50·00	20·10	15,129	23·55	816	1·27
	Total	687,353	96·05	12	P. 7,305 7,147 14,452 R. 134 31 165	1,218	14,542	9,931	3,602	13,611	165	89	94·11	53·94	19·93	15,992	23·27	898	1·31
	AHMEDNAGAR COLLECTORATE—																		
11	Sangamner Town	9,978	623·62	..	.. .. Vide	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	22	2·20
12	Ahmednagar Town	32,841	4105·12	1	P. 574 575 1,149 R. 3 1 4	1,215	1,149	845	279	1,132	4	4	98·52	100	34·59	1,281	39·01	37	1·13
13	Do. Cantonment	3,983	995·75		24 38 62		62	50	11	62	..	..	100	..	15·57	46	11·55	..	..
14	In the 11 Rural Circles, Local Fund	727,136	109·86	11	P. 7,936 7,616 15,552 R. 107 62 169	1,429	15,590	8,670	6,541	15,303	169	73	98·40	43·20	21·15	20,433	28·10	435	0·60
	Total	773,938	116·43	12	P. 8,534 8,229 16,763 R. 110 63 173	1,411	16,801	9,565	6,831	16,497	173	77	98·41	44·50	21·42	21,760	28·12	494	0·64
	POONA COLLECTORATE—																		
15	Junnar Town	10,298	332·66	..	.. .. Vide	Statement	No. III.	..	..	..	..	..	..	..	..	21	2·04	14	1·36
16	Khed do.	6,446	..	1	289 255 544	544	544	248	296	544	..	..	100	..	84·39	603	93·55	..	..
17	Poona City	90,436	22609·0	2	P. 1,429 1,071 2,500 R. 134 5 139	1,319	2,500	1,447	818	2,291	139	38	91·64	27·33	25·75	2,073	22·92	112	1·24
18	Poona and Kirkee Cantonments	28,450	7112·50	1	P. 479 393 872 R. 157 10 167	1,039	877	637	208	846	167	115	97·02	68·86	33·78	909	31·95	19	0·67
19	In the 8 Rural Circles, Local Fund	771,605	152·58	10	P. 6,363 6,315 12,678 R. 27 17 44	1,272	12,707	5,307	6,880	12,261	44	38	96·71	86·36	15·94	14,122	18·30	385	0·50
	Total	907,235	177·92	14	P. 8,560 8,034 16,594 R. 318 32 350	1,210	16,628	7,639	8,202	15,942	350	191	96·07	54·57	17·78	17,728	19·54	530	0·58

Statement No. I showing particulars of Vaccination, &c.—*continued.*

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average Population per Square Mile.	Average number of Vaccinators employed throughout the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccinations.				Re-vaccination.		Percentage of successful cases.		Persons successfully Vaccinated per 1000 of Population.	Average annual number of Persons successfully Vaccinated during previous five years.		Average annual number of Deaths from Small-pox during previous five years.	
									Total.	Successful.			Total.	Successful.	Primary	Re-vaccination.		No.	Ratio per 1000.	No.	Ratio per 1000.
										Under 1 year.	Over 1 and under 6 years.	Total of all Ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	THE NORTHERN DECCAN REGISTRATION DISTRICT—*continued.*				Males.	Females.	Total.														
	Shola'pur Collectorate—																				
20	Sholápur Town	53,403	2225·12	1	P. 801 R. 28	560 9	1,361 37	1,398	1,361	624	493	1,345	37	29	98·82	78·38	25·73	1,593	29·83	46	0·86
21	Bársi do.	18,560	640·00	1	P. 362 R. 1	451 1	813 2	815	813	287	488	775	2	2	95·33	100	41·86	1,106	59·59	12	0·65
22	Pandharpur Town	16,275	3255·00	1	P. 526 R. 16	493 ..	1,019 16	1,035	1,019	618	387	1,008	16	14	98·92	87·50	62·80	1,356	83·32	8	0·49
23	In the 7 Rural Circles, Local Fund	629,796	141·49	9	P. 4,416 R. 175	4,121 133	8,537 308	983	8,577	3,620	4,491	8,349	308	234	97·80	75·97	13·63	12,770	20·28	203	0·32
	Total	718,034	159·25	12	P. 6,105 R. 220	5,625 143	11,730 363	1,008	11,770	5,149	5,859	11,477	363	279	97·84	76·86	16·37	16,825	23·43	269	0·37
	Native States—																				
24	Dang Territory	39,111	10·19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	Peint State	47,033	48·99	1	735	639	1,374	1,374	1,374	247	861	1,336	..	..	97·23	..	28·41	1,232	26·20	..	..
26	Akalkot	81,068	162·79	1	684	591	1,275	1,275	1,280	656	552	1,209	..	..	94·82	..	14·91	1,676	20·67	..	..
27	Modnimb	13,773	154·30	..	P. 123 R. 2	94 ..	217 2	..	219	164	48	214	2	2	98·61	100	15·68	152	11·04	..	..
	Totals by Establishments in Northern Deccan Registration District—																				
	Cantonment	28,450	7112·50	1	P. 479 R. 157	393 10	872 167	1,039	877	637	208	846	167	115	97·02	68·86	33·78	909	31·95	19	0·67
	Municipal	269,104	3129·12	9	P. 4,637 R. 286	4,100 47	8,737 333	1,008	8,737	5,010	3,101	8,403	333	161	95·83	48·35	31·82	9,602	35·68	269	1·00
	Local Fund	3,817,648	114·01	59	P. 39,644 R. 390	38,679 219	78,323 609	1,338	78,744	40,369	32,672	75,971	609	416	97·00	68·31	20·01	89,228	23·37	3,451	0·90
	Native State	180,985	33·58	2	P. 1,542 R. 2	1,324 ..	2,866 2	1,434	2,873	1,067	1,461	2,759	2	2	96·26	100	15·26	3,060	16·91	..	..
	Grand Total	4,296,187	110·27	71	P. 46,302 R. 835	44,496 276	90,798 1,111	1,294	91,231	47,083	37,442	87,979	1,111	694	96·90	62·47	20·64	102,799	23·93	3,739	0·87
	THE SOUTHERN DECCAN REGISTRATION DISTRICT.																				
	Sa'ta'ra Collectorate—																				
28	Sátára Town	24,484	8161·33	1	P 353 R 206	353 ..	706 206	912	707	492	191	700	206	204	99·15	99·03	36·02	1,149	46·93	9	0·37
29	Karád do.	11,410	7606·66	..	....	..	..	Vide St	atement	No. III.	..	..	..	..	..	..	..	235	20·60	3	0·26
30	Wái do.	11,062	5531·00	..	....	..	..	..	Do.	..	..	..	..	..	..	..	..	..	..	13	1·18
31	In the 12 Rural Circles, Local Fund	10,14,046	211·32	13	P 11,864 R 127	11,235 10	23,099 137	1,787	23,174	10,617	11,709	22,619	138	113	97·92	82·48	22·42	28,587	28·19	270	0·26
	Total	10,61,002	220·86	14	P 12,217 R 333	11,588 10	23,805 343	1,725	23,881	11,109	11,900	23,319	344	317	97·96	92·42	21·93	29,971	28·25	295	0·28

	BELGAUM COLLECTORATE—																											
32	Gokák Town	12,612	..	..	....	..	..	Vide Statement No. III.											345	27·35	10	0·79
33	Athní do.	11,588	..	..	....	..	..													..	..	11	0·95
34	Belgaum do.	26,947	..	1	P 490	440	930	Do.												932	34·59	60	2·23
35	Do. Cantonment	5,330	..		R 38	3	41	971	931	311	588	905	42	25	97·31	60·98	28·81			..	..	2	0·38
36	In the 7 Rural Circles, Local Fund	8,82,273	..	11	P 6,374	6,169	12,543	1,152	12,576	3,925	7,714	12,023	125	119	95·85	95·20	13·76	16,172	18·33	588	0·67
					R 76	49	125														
	Total	9,38,750	204·43	12	P 6,864	6,609	13,473	1,137	13,507	4,236	8,302	12,028	167	144	95·95	86·75	13·92	17,449	18·59	671	0·71
					R 114	52	166														
	DA'RWAR COLLECTORATE—																				
37	Dhárwár Town	27,136	..	1	P 591	451	1,042	1,085	1,042	505	331	1,015	43	43	97·41	100	38·99	969	35·71	34	1·25
					R 43	..	43														
38	Hubli do.	37,961	..	1	P 257	237	494	499	494	233	206	439	5	3	88·87	60·00	11·65	1,240	32·66	30	0·79
					R 5	..	5														
39	Gadag-Bettigeri Town	19,035	..	1		285	337	622	622	623	335	235	574	..	..	92·28	..	30·15	918	48·23	10	0·52
40	Ránebennur do.	11,623	..	..	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32	2·75
41	In the 14 Rural Circles, Local Fund	8,92,282	..	11	P 5,604	5,158	10,762	997	10,841	3,177	6,178	9,876	209	74	91·76	35·41	11·15	15,684	17·47	813	0·91
					R 195	14	209														
	Total	9,88,037	216·43	14	P 6,787	6,183	12,920	941	13,000	4,250	6,950	11,904	257	120	92·14	46·69	12·16	18,811	19·06	919	0·93
					R 243	14	257														
	KA'LADGI COLLECTORATE—																				
42	Bágalkot Town	14,002	..	1	P 237	192	429	436	430	242	147	391	7	5	91·14	71·43	28·28	938	66·99	..	..
					R 7	..	7														
43	Bijápur do.	12,938	..	1	P 271	280	551	567	554	146	303	461	16	2	83·67	12·50	35·79	1,069	82·62	..	..
					R 8	8	16														
44	Guledgudd do.	10,674	..	1		84	85	169	169	169	23	142	166	..	..	98·22	..	15·56	568	53·21	..	..
45	Ilkal do.	10,107	..	1	P 223	189	412	414	412	163	144	344	2	2	83·50	100	34·23	300	29·68	..	..
					R 2	..	2														
46	Kaládgi do.	6,592	..	8	P 4,601	4,327	8,928	1,155	8,975	1,922	6,075	8,340	310	244	93·41	78·71	11·17	94	14·26	4	0·61
47	Do. Cantonment																	..	..	..	..
48	In the 8 Rural Circles, Local Fund	7,61,724	..		R 235	75	310											14,074	18·48	318	0·42
	Total	8,16,037	143·29	12	P 5,416	5,073	10,489	902	10,540	2,496	6,811	9,702	335	253	92·50	75·52	12·20	17,043	20·89	322	0·39
					R 252	83	335														
49	KOLHA'PUR STATES	8,02,691	288·95	11	P 5,933	5,719	11,652	1,066	11,678	4,789	6,106	11,104	74	64	95·30	86·49	13·91	16,036	19·98	..	..
					R 55	19	74														
	SOUTHERN MARA'THA JA'GHIRS—																				
50	Sángli	2,23,663	249·62	4	P. 1,136	1,119	2,255	570	2,255	819	1,155	2,001	26	24	88·74	92·31	9·05	2,960	13·23	..	..
					R. 11	15	26														
51	Jámkhandi	1,02,346	208·02	2	P. 767	771	1,538	776	1,542	440	897	1,408	15	13	91·55	86·67	13·88	2,052	20·05	..	..
					R. 14	1	15														
52	Miraj (Senior)	68,428	272·62	2	P. 488	446	934	469	945	258	458	737	5	2	78·91	40·00	10·80	1,251	18·29	..	..
					R. 2	3	5														
53	Miraj (Junior)	35,601	171·99	1		235	130	365	365	365	185	180	..	..	100	..	10·25	558	15·67	..	..
54	Kurandwad (Elder)	39,420	216·59	1		326	311	637	637	639	142	474	622	..	..	97·69	..	15·78	1,065	27·02	..	..
55	Kurandvád (Younger)	30,251	265·38	2	P. 129	107	236	120	237	150	77	227	5	2	96·19	40.00	7·57	517	17·09	..	..
					R. 5	..	5														
56	Mudhol	58,921	162·76	1		299	253	552	552	552	127	385	522	..	..	94·57	..	8·86	1,147	19·47	..	..
57	Rámdurg	38,031	271·65	1		208	220	428	428	428	23	304	364	..	..	85·04	..	9·57	626	16·46	..	..
	Total	596,661	225·58	14	P. 3,588	3,357	6,945	500	6,963	2,144	3,930	6,246	51	41	89·94	80·39	10·54	10,176	17·05	..	..
					R. 32	19	51														
	SA'TA'RA JA'GHIRS—																				
58	Pant Pratinidhi	68,355	320·82	1		188	188	376	376	379	158	153	313	..	..	83·24	..	4·58	954	13·96	..	..
59	Pant Sacheo	1,36,075	91·26	2	P. 1,332	1,519	2,851	1,437	2,851	1,060	1,616	2,837	24	24	99·51	100	21·03	2,864	21·05	..	..
					R. 24	...	24														
60	Phaltan	59,124	148·93	1	P. 378	324	702	707	704	200	436	637	5	4	90·74	80·00	10·84	1,068	18·06	..	..
					R. 4	1	5														
61	Jath	70,665	91·77	1	P. 405	468	873	896	875	161	523	742	23	14	84·99	80·87	10·70	1,206	17·07	..	..
					R. 16	7	23														
	Total	3,34,199	116·40	5	P. 2,303	2,499	4,802	971	4,809	1,579	2,728	4,529	52	42	94·31	80·77	13·65	6,092	18·22	..	..
					R. 44	8	52														

Statement No. I. showing particulars of Vaccination, &c.—*continued.*

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average Population per Square Mile.	Average number of Vaccinators employed throughout the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccinations.				Re-vaccination.		Percentage of Successful Cases.		Persons successfully Vaccinated per 1000 of Population.	Average annual number of Persons successfully Vaccinated during previous five years.		Average annual number of Deaths from Small-pox during previous five years.	
									Total.	Successful			Total.	Successful.	Primary.	Re-vaccination.		No.	Ratio per 1000.	No.	Ratio per 1000.
										Under 1 year.	Over 1 and under 6 years.	Total of all Ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	THE SOUTHERN DECCAN REGISTRATION DISTRICT—*continued.*				Males.	Females.	Total.														
	Under the Dha'rwa'r Agency—																				
62	Savanúr State	17,288	247·04	1	P. 80 R. 1	85 2	165 3	168	165	77	65	142	3	2	86·09	66·66	8·23	528	30·54	..	..
	Totals by Establishments in Southern Deccan Registration District—																				
	Municipal..	195,206	65068·67	9	P. 2,791 R. 309	2,564 11	5,355 320	631	5,362	2,450	2,287	4,995	321	284	93·28	88·75	27·04	8,758	44·87	162	0·83
	Local Fund	3,608,620	183·61	43	P. 28,443 R. 633	26,889 148	55,332 781	1,305	55,566	19,641	31,676	52,858	782	550	95·53	70·42	14·80	74,516	20·65	2,045	0·57
	Native State	1,750,839	209·33	31	P. 11,904 R. 132	11,660 48	23,564 180	766	23,615	8,589	12,829	22,021	180	149	93·45	82·78	12·66	32,832	18·75	..	..
	Grand Total ..	5,554,665	198·23	83	P. 43,138 R. 1,074	41,113 207	84,251 1,281	1,031	84,543	30,680	46,792	79,874	1,283	983	94·80	76·74	14·56	1,16,106	20·90	2,207	0·40
	THE KONKAN REGISTRATION DISTRICT.																				
	Ka'nara Collectorate—																				
63	Kárwár Town	13,263	..	..	P 137 R 2	113 ..	250 2	..	250	56	168	231	2	1	92·40	50·00	17·57	12	0·90	8	0·60
64	Cumpta do.	10,932	..	..	.. ..	.. ..	Vide	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	4	0·36
65	In the 11 Rural Circles, Local Fund	374,211	..	11	P 4,364 R 253	3,915 144	8,279 397	789	8,305	681	4,711	7,589	397	257	92·87	64·74	20·97	12,378	33·08	228	0·61
	Total ..	398,406	94·07	11	P 4,501 R 255	4,028 144	8,529 399	813	8,555	737	4,879	7,820	399	258	91·69	64·66	21·59	12,390	33·11	240	0·64
	Ratna'giri Collectorate—																				
66	Vengurla Town	14,996	..	..	P 101 R 4	85 1	186 5	..	186	40	141	186	5	4	100	80·00	12·67	..	..	2	0·13
67	Ratnágiri do.	10,614	..	..	P 28 R 54	32 5	60 59	..	60	16	35	54	59	28	90·00	47·46	7·73	..	..	20	1·88
68	In the 8 Rural Circles, Local Fund	993,526	..	13	P 11,530 R 2,488	11,111 1,983	22,641 4,471	2,086	22,737	9,218	12,021	22,084	4,471	3,135	97·54	70·12	25·44	28,927	29·12	654	0·66
	Tota ..	1,019,136	225·87	13	P 11,659 R 2,548	11,228 1,989	22,887 4,535	2,109	22,988	9,274	12,197	22,324	4,535	3,167	97·54	69·83	25·01	28,927	28·38	676	0·64
	Kola'ba Collectorate—																				
69	A'libag Town	5,473	..	..	17	9	26	..	26	12	2	19	..	..	73·08	..	3·48	..	..	10	0·18
70	Mahád do.	6,631	6631	..	3	..	3	..	3	..	..	..	..	..	..	..	..	..	..	6	0·90
71	In the 6 Rural Circles, Local Fund	338,301	225·08	5	P 4,036 R 131	3,750 21	7,786 152	1,568	7,839	5,307	2,078	7,499	152	63	96·31	41·45	22·35	8,146	24·08	197	0·58
	Total ..	350,405	232·98	5	P 4,056 R 131	3,759 21	7,815 152	1,593	7,868	5,319	2,080	7,518	152	63	96·20	41·45	21·63	8,146	23·25	213	0·61

	THA'NA COLLECTORATE—																								
72	Kalyán Town	12,804	4268·00	..		..	Vide	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	11	0·86
73	Thána do.	14,299	3574·75	1	P 565 / R 480	287 / 206	852 / 686	1,538	852	333	150	843	686	237	98·94	34·55	75·53	677	47·35	14	0·98
74	Pánvel do.	10,836	1806·60	1	P 296 / R 2	279 / ..	575 / 2	943	575	480	88	573	2	2	99·65	100	53·06	452	41·71	6	0·55
75	Uran do.	8,690	..		176	190	366		366	218	142	366	..	..	100	..	42·12	400	46·03	..	..
76	In the 11 Rural Circles, Local Fund	800,795	198·26	11	P 8,101 / R 25	7,869 / 7	15,970 / 32	1,455	16,011	8,399	6,710	15,381	32	11	96·31	34·38	19·25	15,114	18·87	594	0·74
	Total ..	847,424	209·13	13	P 9,138 / R 507	8,625 / 213	17,763 / 720	1,422	17,804	9,430	7,090	17,163	720	250	96·62	34·72	20·55	16,643	19·64	625	0·74
	NATIVE STATES—																				
77	Sávantvádi	190,814	212·02	1	P 1,649 / R 1,200	1,622 / 941	3,271 / 2,141	5,412	3,336	1,229	1,652	3,029	2,141	727	92·60	33·96	19·68	6,400	33·54	..	..
78	Janjira	71,996	479·53	1	P 801 / R 7	781 / 6	1,582 / 13	1,595	1,620	742	738	1,537	13	11	97·16	84·62	21·50	2,374	32·97	..	..
79	Jawhár	37,406	70·05	1	900	825	1,725	1,725	1,725	704	952	1,718	..	.	99·59	..	45·93	1,328	35·50	..	..
	TOTALS BY ESTABLISHMENTS IN KONKAN REGISTRATIO DISTRICT—																				
	Municipal	33,825	3382·50	2	P 1,037 / R 482	756 / 206	1,793 / 688	1,240	1,793	1,031	380	1,782	688	239	99·39	34·74	59·75	1,529	45·20	20	0·59
	Local Fund	2,581,546	180·61	40	P 28,317 / R 2,957	26,884 / 2,161	55,201 / 5,118	1,508	55,417	23,729	25,866	53,043	5,118	3,499	97·54	68·37	22·21	64,564	25·01	1,734	0·67
	Native State	300,216	213·65	3	P 3,350 / R 1,207	3,228 / 947	6,578 / 2,154	2,911	6,681	2,675	3,342	6,284	2,154	738	95·53	34·26	23·39	10,102	33·65	..	..
	Grand Total ..	2,915,587	185·61	45	P 32,704 / R 4,646	30,868 / 3,314	63,572 / 7,960	1,590	63,891	27,435	29,588	61,109	7,960	4,476	96·13	56·23	22·49	76,195	26·13	1,754	0·60
	THE PRESIDENCY CIRCLE.																				
80	Bombay City (Municipal)	644,405	29291·13	8	P 5,376 / R 2,490	5,190 / 243	10,566 / 2,733	1,662	11,028	6,558	2,519	9,247	2,739	1,575	87·52	57·63	16·79	16,071	24·94	612	0·95
	THE EASTERN GUJARA'T REGISTRATION DISTRICT.																				
	SURAT COLLECTORATE—																				
81	Surat Town	107,149	35716·33	1	P. 830 / R. 180	806 / 18	1,636 / 198	1,834	1,636	1,111	439	1,565	198	42	95·66	21·21	15·00	1,946	18·16	171	1·59
82	Bulsár do.	11,315	..	..	..	..	Vide	Statement	No. III.									..	..	10	0·88
83	In the 8 Rural Circles, Local Fund	488,623	300·32	8	P. 6,394 / R. 90	5,981 / 24	12,375 / 114	1,561	12,413	8,618	3,249	12,067	114	63	97·51	55·26	24·82	13,143	26·90	531	1·09
	Total ..	607,087	372·44	9	P. 7,224 / R. 217	6,787 / 42	14,011 / 312	1,591	14,049	9,729	3,688	13,632	312	105	97·29	33·65	22·63	15,089	24·85	712	1·17
	BROACH COLLECTORATE—																				
84	Broach City	36,932	..	1	P. 417 / R. 3	363 / ..	780 / 3	783	780	523	185	712	3	2	91·28	66·67	19·33	837	22·66	64	1·73
85	Jambusar Town	14,924	..	..	..	..	Vide	Statement	No. III.									..	..	4	0·27
86	In the 6 Rural Circles, Local Fund	298,466	..	5	P. 3,133 / R. 159	2,961 / 32	6,094 / 191	1,257	6,157	4,489	1,336	5,841	193	61	95·85	31·94	19·77	7,512	25·17	206	0·69
	Total ..	350,322	257·02	6	P. 3,550 / R. 162	3,324 / 32	6,874 / 194	1,178	6,937	5,012	1,521	6,553	196	63	95·33	32·47	18·86	8,349	23·83	274	0·78

Statement No. I. showing particulars of Vaccination, &c.—*continued.*

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average Population per Square Mile.	Average number of Vaccinators employed throughout the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccinations.				Re-Vaccination.		Percentage of successful Cases.		Persons successfully Vaccinated per 1000 of Population.	Average annual number of Persons successfully Vaccinated during previous five years.		Average annual number of deaths from Small-pox during previous five years.	
									Total.	Successful.			Total.	Successful.	Primary.	Re-Vaccination.		No.	Ratio per 1000.	No.	Ratio per 1000.
										Under 1 year.	Over 1 and under 6 years.	Total of all Ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	THE EASTERN GUJARA'T REGISTRATION DISTRICT—*continued.*				Males.	Females.	Total.														
	Kaira Collectorate—																				
87	Nadiád Town	24,551	2455·10	1	P. 522	376	898	945	902	741	118	867	47	24	96·55	51·06	36·29	1,013	41·26	6	0·24
					R. 47	..	47														
88	Kaira do. Local Fund	12,681	1585·12	..	P. 94	91	185	..	185	133	25	158	5	1	85·45	20·00	12·53	162	12·77	5	0·39
					R. 5	..	5														
89	Borsad do.	12,214	1221·40	..			Vide	Statement	No. III.									..	..	13	1·06
90	Kapadvanj Town	13,982	1997·42	..				Do.										..	..	3	0·21
91	In the 7 Rural Circles, Local Fund	719,305	471·36	8	P. 10,478	8,385	18,863	2,382	19,006	14,118	3,728	17,937	194	68	95·09	35·05	25·03	18,095	25·16	445	0·62
					R. 173	21	194														
	Total ..	782,733	501·43	9	P. 11,094	8,852	19,946	2,244	20,093	14,992	3,871	18,962	246	93	95·07	37·80	24·34	19,270	24·62	472	0·60
					R. 225	21	246														
	Panch Ma'ha'ls—																				
92	Godhra Town	10,641	..	..	..	..	Vide	Statement	No. III.									..	..	2	0·18
93	Dohad do. Local Fund	11,472	..	..	P. 192	236	428	..	428	267	145	418	249	148	97·66	59·44	49·34	260	22·66	9	0·77
					R. 245	4	249														
94	In the 5 Rural Circles, Local Fund	218,630	..	5	P. 2,908	2,712	5,620	1,167	5,673	2,689	2,452	5,485	215	165	97·60	76·74	25·84	9,057	41·43	37	0·17
					R. 142	73	215														
	Total ..	240,743	146·43	5	P. 3,100	2,948	6,048	1,302	6,101	2,956	2,597	5,903	464	313	97·60	67·45	25·82	9,317	38·70	48	0·20
					R. 387	77	464														
	Ahmedabad Collectorate—																				
95	Gogo Town Local Fund	9,571	..	..	163	166	329	..	329	177	115	296	..	..	89·96	..	30·92	..	..	1	0·10
96	Viramgám Town	19,661	..	1	P 390	405	795	797	801	660	79	741	2	1	93·21	50·00	37·74	766	38·96	13	0·66
					R 2	..	2														
97	Dholka do.	20,854	..	1	P 342	330	672	690	697	579	22	606	18	3	90·18	16·67	29·20	675	32·37	4	0·19
					R 18	..	18														
98	Dhandhuka do.	9,782	..	1	P 212	156	368	476	373	319	29	351	108	62	95·38	57·41	42·22	1,193	121·96	..	..
					R 65	43	108														
99	Ahmedabad City	116,873	58436·50	2	P 1,775	1,717	3,492	1,780	3,522	2,618	727	3,353	69	34	96·02	49·27	28·52	4,864	41·62	6	0·05
100	Do. Cantonment	1,883	627·66		R 51	18	69											..	..	1	0·53
101	In the 7 Rural Circles .. { Local Fund	651,013	169·57	8	P 7,998	7,253	15,251	1,999	15,421	11,430	3,140	14,629	740	427	95·92	57·70	23·13	15,186	23·33	379	0·58
					R 574	166	740														
	{ Municipal				P 548	496	1,044		1,066	828	145	980	114	75	93·87	65·79	1·62				
					R 90	24	114														
	Total ..	829,637	215·83	13	P 11,428	10,523	21,951	1,769	22,209	16,611	4,257	20,956	1,051	602	95·47	57·28	25·98	22,684	27·34	404	0·49
					R 800	251	1,051														

102	Rawa Kántha States	505,732	1504·45	11	P	6,902	6,266	13,168	1,204	13,249	4,025	7,247	12,799	76	66	97·13	86·84	25·42	13.195	26·09	..	..
					R	51	25	76														
103	Mahi Kántha States	447,056	111·76	5	P	4,921	4,281	9,202	1,849	9,271	4,082	4,720	8,945	47	25	97·21	56·82	20·70	9,392	21·01	..	..
					R	29	15	44														
104	Cambay	83,494	238·55	1	P	967	867	1,834	1,844	1,888	1,405	346	1,768	10	4	96·40	40·00	21·22	2,481	29·71	..	..
					R	10	..	10														
105	Dharampor	74,592	331·52	1	P	891	852	1,743	1,755	1,743	419	798	1,723	12	..	98·85	..	23·10	3,499	46·91	..	..
					R	7	5	12														
106	Surat Agency ... Bánsda	32,154	98·94	1		434	461	895	895	895	270	536	850	..	..	94·97	..	26·44	1,756	53·99	..	..
107	Sachin Local Fund	17,103	263·12	..	P	122	118	240	..	240	133	94	230	1	..	95·83	..	14·03	392	22·92	..	..
					R	1	..	1														
108	Jámbughoda Local Fund	6,837	47·81	..		90	71	161	..	161	82	72	157	..	..	97·52	..	22·96	209	30·57	..	..
	Totals by Establishments in Eastern Gujarát Registration — Municipal	337,685	22512·33	8	P	5,036	4,649	9,685	1,280	9,777	7,379	1,744	9,175	559	243	94·73	43·47	27·89	11,295	33·45	265	0·78
					R	456	103	559														
	Local Fund	2,496,777	244·02	34	P	31,572	27,974	59,546	1,802	60,013	42,136	14,356	57,218	1,711	933	96·09	54·59	23·29	64,016	25·64	1,645	0·66
					R	1,389	320	1,709														
	Native State	1,143,028	130·40	19	P	14,115	12,727	26,842	1,420	27,046	10,201	13,647	26,076	145	95	97·14	66.90	22·89	30,324	26·53	..	..
					R	97	45	142														
	Grand Total ...	3,977,490	201·49	61	P	50,723	45,350	96,073	1,614	96,836	59,716	29,747	92,469	2,415	1,271	96·25	52·74	23·56	1,05,635	26.57	1,910	0·48
					R	1,942	468	2,410														
	THE WESTERN GUJARA'T CIRCLE. KA'THIA'WA'R STATES.																					
109	Limbdi	45,940	163·82	1	P	829	759	1,588	1,628	1,588	738	725	1,490	40	9	93·83	22·50	32·63	2,066	44·91	..	..
					R	28	12	40														
110	Jhálávád Prant .. .. Dhrángadra	100,000	87·26	1	P	900	893	1,793	1,831	1,793	740	835	1,592	38	29	88·79	76·32	16·21	2,346	23·46	..	..
					R	22	16	38														
111	In 5 other States	313,523	76·71	5	P	4,334	4,232	8,566	1,778	8,621	4,966	2,787	7,838	326	211	91·50	64·72	25·67	11,353	36·21	..	..
					R	216	110	326														
	Total ...	459,463	83·33	7	P	6,063	5,884	11,947	1,764	12,002	6,444	4,347	10,920	404	249	91·40	61·63	24·31	15,765	34·31	..	..
					R	266	138	404														
112	Rájkot	33,086	136·69	1	P	947	965	1,912	2,055	1,912	1,390	458	1.867	26	26	97·65	100	57·21	2,137	64·59	..	..
					R	23	3	26														
113	Do. Cantonment	3,084				66	51	117		117	72	41	114	..	..	97·43	..	30·94	1,481	402·01	..	..
114	Gondal	137,217	196·21	2	P	1,458	1,303	2,761	1,436	2,844	1,209	935	2,215	112	46	80·22	41·07	16·48	3,501	25·51	..	..
					R	63	49	112														
Hálár Prant					P	969	926	1,895	1,938	1,913	910	806	1,738	43	28	91·72	65·12	19·49	2,686	29·64	..	..
115	Morvi	90,616	85·33	1	R	27	16	43														
116	Navánagar	290,847	85·71	3	P	3,147	2,937	6,084	2,097	6,099	2,818	2,117	5,069	208	84	83·32	40·38	17·72	6,545	22·50	..	..
					R	149	59	208														
117	In 3 other States	91,754	127·95	3	P	2,122	1,978	4,100	1,411	4,211	1,614	1,895	3,630	133	62	88·53	46·97	40·24	4,299	46·85	..	..
					R	70	62	132														
	Total ...	647,204	105·39	10	P	8,709	8,160	16,869	1,739	17,096	8,013	6,252	14,633	522	246	86·74	47·13	22·99	20,649	31·44	..	..
					R	332	189	521														
118	Junágadh	380,921	100·24	4	P	2,466	2,368	4,834	1,271	4,835	2,751	1,624	4,427	251	208	91·58	82·87	12·17	8,111	21·29	..	..
					R	127	124	251														
119	Jetpur	95,620	165·37	1	P	627	622	1,249	1,341	1,249	612	404	1,033	92	31	82·71	33·70	11·13	2,333	24·40	..	..
					R	44	48	92														
120	Sorath Prant .. ... Porbandar	72,077	134·69	1	P	879	768	1,647	1,691	1,647	772	793	1,597	44	43	96·96	97·73	23·03	2,146	29,77	..	..
					R	29	15	44														
121	Bántva	40,314	193·44	1	P	1,012	977	1,989	2,236	1,992	1,089	844	1,961	247	209	98·59	84·62	53·82	2,487	61,69	..	..
					R	117	130	247														
122	In 4 other States	45,377	204·41	4	P	2,810	2,617	5,427	1,440	5,461	2,528	2,057	4,667	333	204	86·00	61·26	107·35	4,914	108·29	..	..
					R	178	155	333														
	Total ...	634,309	118·70	11	P	7,794	7,352	15,146	1,465	15,184	7,752	5,722	13,685	967	695	90·35	71·87	22·67	19,991	31·52	..	..
					R	495	472	967														
123	Bhavnagar	399,688	143·57	6	P	5,703	5,460	11,163	1,930	11,226	5,285	4,622	10,051	418	224	90·04	53·59	25·71	12,689	31·75	..	..
					R	236	188	418														
124	Gohelwad Prant .. ... Pálitána			1	P	620	639	1,259	1,287	1,259	439	479	929	28	10	73·79	35·71	17·50	1,954	24·81	..	..
					R	21	7	28														
125	Wala	171,965	30·871	1	P	1,010	998	2,008	2,241	2,008	1,327	594	1,922	233	148	95·72	63·52		2,313		..	..
					R	128	105	233														
	Total ...	571,653	171·10	8	P	7,333	7,097	14,430	1,889	14,493	7,051	5,695	12,902	679	382	89·41	56·26	23·24	16,956	29·60	..	..
					R	379	300	679														
	Káthiáwár States, Total ..	2,312,629	113·69	36	P	29,899	28,493	58,392	1,693	58,775	29,260	22,016	52,140	2,572	1,572	89·29	61·14	23·28	73,361	3,120	..	..
					R	1,472	1,099	2,571														

Statement No. I. showing particulars of Vaccination, &c.—*continued.*

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average Population per Square Mile.	Average number of Vaccinators employed throughout the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccinations.				Re-Vaccination.		Percentage of successful Cases.		Persons successfully Vaccinated per 1000 of Population.	Average annual number of Persons successfully Vaccinated during previous five years.		Average annual number of Deaths from Small-pox during previous five years.	
									Total.	Successful.			Total.	Successful.	Primary.	Re-Vaccination.		No.	Ratio per 1000.	No.	Ratio per 1000.
										Under 1 year.	Over 1 and under 6 years.	Total of all Ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	THE WESTERN GUJARA'T CIRCLE—*continued.*				Males.	Females.	Total.														
	Pala'npur States—																				
126	Deesa	49,821	..	1	P 1,125	1,059	2,184	2,643	2,184	985	1,056	2,059	42	33	94·28	78·57	41·99	2,142	36·21	..	..
					R 23	19	42														
127	Do. Cantonment	9,335	..		227	190	417		417	320	81	404	..	..	96·88	..	43·28				
128	Pálanpur	156,816	65·77	2	P 1,943	1,792	3,735	2,010	3,740	2,054	1,409	3,487	290	197	93·36	68·88	23·49	4,292	27·37	..	..
					R 143	143	286														
129	Rádhanpur	91,579	98·57	1	716	777	1,493	1,493	1,493	488	531	1,023	..	..	68·52	..	11·17	1,566	17·10	..	..
130	In three other States	195,035	71·23	3	P 3,334	3,125	6,459	2,371	6,459	3,928	2,143	6,144	653	489	95·12	74·89	34·01	5,499	28·19	..	..
					R 351	302	653														
	Total	502,586	83·19	7	P 7,345	6,943	14,288	2,181	14,293	7,775	5,220	13,117	985	719	91·80	73·29	27·53	13,499	26·88	..	..
					R 517	464	981														
	Totals by Establishments in Western Gujarát Circle—Government	95,926	356·60	2	P 2,365	2,265	4,630	2,349	4,630	2,767	1,6[illegible]	4,444	68	59	95·98	86·76	46·94	4,676	48·75	..	..
					R 46	22	68														
	Native State	2,719,289	119·22	41	P 34,879	33,171	68,050	1,745	68,438	34,268	25,600	60,813	3,489	2,232	89·37	61·06	23·18	82,184	30·22	..	..
					R 1,943	1,541	3,484														
	Grand Total	2,815,215	121·99	43	P 37,244	35,436	72,680	1,773	73,068	37,035	27,236	65,257	3,557	2,291	89·79	64·50	23·99	86,860	30·85	..	..
					R 1,989	1,563	3,552														
	THE SIND REGISTRATION DISTRICT.																				
	Kurrachee Collectorate—																				
131	Kurrachee Town	53,526	2676·30	3	P 809	638	1,447	990	1,448	839	367	1,292	1,524	919	89·29	60·30	41·31	3,634	67·89	175	3·27
					R 1,425	99	1,524														
132	In the 13 Rural Circles, Local Fund	369,969	26·29	9	P 5,111	4,856	9,967	2,539	9,981	5,692	3,419	9,682	12,881	10,889	97·14	84·54	55·60	17,652	47·71	816	2·21
					R 5,109	7,771	12,880														
	Total	423,495	30·05	12	P 5,920	5,494	11,414	2,151	11,429	6,531	3,786	10,974	14,405	11,808	96·15	81·98	53·71	21,286	50·26	991	2·34
					R 6,534	7,870	14,404														
	Hyderabad Collectorate—																				
133	Hyderabad Town	35,272	..	1	P 506	458	964	1,901	965	747	210	961	937	814	99·69	86·87	50·32	2,044	57·95	238	6·75
					R 927	10	937														
134	In the 13 Rural Circles, Local Fund	686,675	..	12	P 9,513	7,057	16,570	1,970	16,675	9,039	6,179	15,881	7,093	5,104	95·84	72·20	30·56	32,472	47·28	979	1·43
					R 5,055	2,014	7,069														
	Total	721,947	79·75	13	P 10,019	7,515	17,534	1,965	17,640	9,786	6,389	16,842	8,030	5,918	96·05	73·92	31·48	34,516	47·81	1,217	1·69
					R 5,982	2,024	8,006														
	Thar and Pa'rkar—																				
135	Umarkot Town	3,999	..	..	..	..	..	Vide	Statement No. III.			..	..	..	..	..	..	..	..	2	0·50
136	In the 7 Rural Circles, Local Fund	176,672	..	6	P 3,532	2,959	6,491	1,883	6,517	2,544	3,234	6,019	4,826	3,678	92·73	76·50	54·89	12,680	71·77	9	0·06
					R 1,497	3,311	4,808														
	Total	180,761	14·20	6	P 3,532	2,959	6,491	1,883	6,517	2,544	3,234	6,019	4,826	3,678	92·73	76·50	53·65	12,680	70·15	11	0·07
					R 1,497	3,311	4,808														
	Shika'rpur Collectorate—																				
137	Shikárpur Town	38,107	7,621·40	1	P 808	754	1,562	2,855	1,616	1,265	99	1,387	1,326	901	88·80	69·68	60·04	1,897	49·78	9	0·24
					R 1,246	47	1,293														
138	Sukkur	13,318	4,439·33	1	P 786	490	1,276	3,575	1,278	807	395	1,222	2,299	1,955	95·77	85·04	238·55	1,369	102·79	..	..
					R 1,789	510	2,299														
139	Rohri	8,580	1,430·00	..	..	..	..	Vide	Statement No. III.			..	..	..	..	..	..	253	29·49	..	..
140	Lárkhána	10,643	..	..	..	..	..	..	Ditto			..	..	..	..	..	..	..	..	5	0·47
141	In the 17 Rural Circles, Local Fund	705,579	80·18	13	P 10,344	8,704	19,048	1,539	19,185	11,255	6,340	18,308	10,982	8,879	96·12	81·06	38·53	36,519	51·76	13	0·02
					R 3,660	7,293	10,953														
	Total	776,227	88·08	15	P 11,938	9,948	21,886	2,429	22,079	13,327	6,834	20,917	14,607	11,735	95·57	80·68	42·06	40,038	51·58	27	0·04
					R 6,695	7,850	14,545														

	UPPER SIND FRONTIER—																							
142	Jacobabad Town	5,205	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0·19
143	In the 3 Rural Circles, Local Fund	84,780	..	3	P 2,098 R 751	1,844 1,032	3,942 1,783	1,908	3,986	2,264	1,297	3,660	1,800	1,331	92·85	74·65	58·87	5,542	65·37	1	0·01
	Total ..	89,985	47·03	3	P 2,098 R 751	1,844 1,032	3,942 1,783	1,908	3,986	2,264	1,297	3,660	1,800	1,331	92·85	74·65	55·46	5,542	61·59	2	0·02
	NATIVE STATE.																				
144	Khairpur State	130,350	48·14	2	P 1,501 R 52	1,296 13	2,797 65	1,431	2,813	1,084	1,486	2,713	65	41	97·00	63·08	21·13	5,040	38·67	..	..
	TOTALS BY ESTABLISHMENTS IN SIND REGISTRATION DISTRICT—																				
	Municipal	140,223	5007·96	6	P 2,907 R 5,389	2,340 666	5,249 6,053	1,717	5,307	3,658	1,071	4,862	6,086	4,589	92·63	75·40	67·40	9,196	65·58	422	3·01
	Local Fund	2,052,192	54·56	43	P 30,598 R 16,072	25,420 21,421	56,018 37,493	2,175	56,344	30,794	20,469	53,550	37,582	29,881	95·59	79·70	40·65	1,04,866	51·10	1,826	0·89
	Native State	130,350	48·14	2	P 1,501 R 52	1,296 13	2,797 65	1,431	2,813	1,084	1,486	2,713	65	41	97·00	63·08	21·13	5,040	38·67	..	..
	Grand Total ..	2,322,765	47·11	51	P 35,008 R 21,511	29,056 22,100	64,064 43,611	2,111	64,464	35,536	23,026	61,125	43,733	34,511	95·41	79·13	41·17	1,19,102	51·28	2,248	0·97
	THE BARODA CIRCLE.																				
145	Baroda States	2,000,225	185·77	31	P 24,332 R 183	22,106 65	46,438 248	1,506	46,990	31,053	11,729	43,737	249	172	94·18	69·35	21·95	39,322	19·61	..	..
	THE CUTCH CIRCLE.																				
146	Cutch States	487,305	74·97	15	P 5,804 R 244	5,508 207	11,312 451	784	11,312	4,565	5,462	10,354	451	361	91·53	80·04	21·99	6,202	12·73	..	..
	ADEN.																				
147	Aden Municipality	19,289	1753·54	1	P 551 R 1	275 ..	826 1	827	826	176	404	665	1	..	80·51	..	34·53	907	47·02	..	..
	TOTAL OF THE BOMBAY PRESIDENCY. BY ESTABLISHMENTS.																				
	Government	95,926	356·60	2	P 2,365 R 46	2,265 22	4,630 68	2,349	4,630	2,767	1,636	4,444	68	59	95·98	86·76	46·94	4,676	48·75	..	..
	Municipal	1,639,737	9212·01	43	P 22,337 R 9,411	19,874 1,276	42,211 10,687	1,230	42,830	26,262	11,506	39,129	10,727	7,091	92·70	66·35	28·19	57,358	34·98	1,750	1·07
	Cantonment	28,450	7112·50	1	P 479 R 157	393 10	872 167	1,039	877	637	208	846	167	115	97·02	68·86	33·78	909	31·95	19	0·67
	Local Fund	14,556,783	117·17	219	P 1,58,574 R 21,441	1,45,846 24,269	3,04,420 45,710	1,599	3,06,084	1,56,669	1,25,039	2,92,640	45,802	35,279	96·13	77·18	22·53	3,97,190	27·35	10,701	0·74
	Native State	8,712,237	122·85	144	P 97,427 R 3,860	91,020 2,866	1,88,447 6,726	1,355	1,89,768	93,502	75,556	1,74,757	6,735	3,790	92·74	56·35	20·49	2,09,066	24·00	..	..
	In British Territory	16,214,049	130·54	264	P 1,81,471 R 31,008	1,66,165 25,555	3,47,636 56,563	1,531	3,49,924	1,83,745	1,36,709	3,32,746	56,695	42,485	95·72	75·11	23·14	4,57,676	28·23	12,470	0·77
	In Native State Territory	8,819,084	123·53	145	P 99,711 R 3,907	93,233 2,888	1,92,944 6,795	1,377	1,94,265	96,092	77,236	1,79,070	6,804	3,849	92·81	56·64	20·74	2,11,523	23·98	..	..
	Grand Total ..	25,033,133	127·98	409	P 2,81,182 R 34,915	2,59,398 28,443	5,40,580 63,358	1,477	5,44,189	2,79,837	2,13,945	5,11,816	63,499	46,334	94·86	73·13	22·30	6,69,199	26·73	12,470	0·50

Statement No. II. showing the cost of the Department

Number.	Circles and Districts.	Establishment.																
		Deputy Sanitary Commissioners.	Superintendents of Circles.	Inspectors of Sanitation and Vaccination.			Assistant Superintendents of Vaccination.			Clerks.	Vaccinators.							Havildars and Peons.
														Local Funds.				
				1st Class.	2nd Class.	3rd Class.	1st Class.	2nd Class.	3rd Class.		Government.	Municipal.	Cantonment.	1st Class.	2nd Class.	3rd Class.	Native States.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	THE NORTHERN DECCAN REGISTRATION DISTRICT.																	
	Administrative Charges	1	..	1	1	5	..	..	..	2	..	..	..	..	..	..	..	11
1	Khándesh Collectorate	..	..	..	..	..	..	..	..	..	..	1	..	1	7	10	..	18
2	Násik do.	..	..	..	..	..	..	..	..	..	..	1	..	1	4	6	1	13
3	Ahmednagar do.	..	..	..	..	..	..	..	..	..	..	1	..	1	5	5	..	12
4	Poona do.	..	..	..	..	..	..	..	..	..	..	3	1	1	4	5	..	13
5	Sholápur do.	..	..	..	..	..	..	..	..	..	..	3	..	1	3	5	1	13
	Total	1	..	1	1	5	..	..	..	2	..	9	1	5	23	31	2	80
	THE SOUTHERN DECCAN REGISTRATION DISTRICT.																	
	Administrative Charges	1	..	1	1	3	..	..	..	2	..	..	..	..	..	..	..	9
6	Sátára Collectorate	..	..	..	..	..	..	..	..	..	..	1	..	1	5	7	5	19
7	Belgaum do.	..	..	..	..	..	..	..	..	..	..	1	..	1	3	7	..	12
8	Dhárwár do.	..	..	..	..	..	..	..	..	..	..	3	..	1	5	5	1	15
9	Kaládgi do.	..	..	..	..	..	..	..	..	..	..	4	..	1	3	4	..	12
10	Kolhápur States	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	11	12
11	Southern Marátha Jághirs	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14	14
	Total	1	..	1	1	3	..	..	1	2	..	9	..	4	16	23	31	93
	THE KONKAN REGISTRATION DISTRICT.																	
	Administrative Charges	1	..	1	1	2	..	..	..	2	..	..	..	..	..	..	..	8
12	Kánara Collectorate	..	..	..	..	..	..	..	..	..	..	..	..	1	3	7	..	11
13	Ratnágiri do.	..	..	..	..	..	..	..	..	..	..	..	..	1	6	6	1	17
14	Kolába do.	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	1	6
15	Thána do.	..	..	..	..	..	..	..	..	..	..	2	..	1	5	5	1	14
	Total	1	..	1	1	2	..	..	..	2	..	2	..	4	16	20	3	56
	THE PRESIDENCY CIRCLE.																	
	Administrative Charges	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	Bombay	..	..	..	..	..	1	..	..	2	..	9	..	..	..	..	..	3
	Total	..	1	..	..	..	1	..	..	2	..	9	..	..	..	..	..	3
	THE EASTERN GUJARAT REGISTRATION DISTRICT.																	
	Administrative Charges	1	..	..	..	5	..	..	..	2	..	..	..	..	..	..	..	9
17	Surat Collectorate	..	..	..	..	..	..	..	..	..	..	1	..	1	3	4	2	11
18	Broach do.	..	..	..	..	..	..	..	..	..	..	1	..	1	1	3	1	7
19	Kaira do.	..	..	..	..	..	..	..	..	..	..	1	..	1	3	4	..	10
20	Panch Mahals	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	..	5
21	Ahmedabad Collectorate	..	..	..	..	..	..	..	..	..	..	5	..	1	3	4	..	13
22	Mahi Kántha Agency	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	2
23	Rewa Kántha	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	11
	Total	1	..	..	..	5	..	..	..	2	..	8	..	5	12	17	19	68
	THE WESTERN GUJARAT CIRCLE.																	
	Administrative Charges	..	1	..	..	..	..	1	1	2	..	..	..	..	..	..	..	6
24	Káthiáwár	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	35	36
25	Pálanpur	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	6	7
	Total	..	1	..	..	..	..	1	1	2	2	..	..	..	..	..	41	49
	THE SIND REGISTRATION DISTRICT.																	
	Administrative Charges	1	..	1	1	4	..	..	..	2	..	..	..	..	..	..	..	10
26	Kurrachee Collectorate	..	..	..	..	..	..	..	..	..	..	3	..	1	4	4	..	9
27	Hyderabad do.	..	..	..	..	..	..	..	..	..	..	1	..	2	5	5	..	13
28	Thar and Parkar	..	..	..	..	..	..	..	..	..	..	..	..	1	2	3	..	6
29	Shikárpur Collectorate	..	..	..	..	..	..	..	..	..	..	2	..	1	6	6	2	18
30	Upper Sind Frontier	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	3
	Total	1	..	1	1	4	..	..	..	2	..	6	..	6	18	19	2	59
	THE BARODA CIRCLE.																	
31	Baroda States	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	31	34
	THE CUTCH CIRCLE.																	
32	Cutch States	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	15	16
	ITTHE ADEN MUNICIPALY.																	
33	Aden	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
	Total for the Bombay Presidency	5	2	5	5	20	2	1	2	14	2	44	1	24	85	110	144	459

RETURN.

in the Bombay Presidency during the year 1878-79.

EXPENDITURE.				PAID FROM							
Pay of Establishment.	Travelling Allowances.	Contingencies.	Total Cost.	Provincial Funds.	Local Funds.	Municipal Funds.	Cantonment Funds.	Native State Funds.	Total.	Number of all successful Vaccinations and Re-vaccinations.	Average cost of each successful case.
20	21	22	23	24	25	26	27	28	29	30	31
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		Rs. a. p.
14,869 0 7	1,863 15 2	782 5 0	17,515 4 9	17,515 4 9	....	....	..	....	17,515 4 9	..	....
5,272 4 1	....	129 4 3	5,401 8 4	....	5,163 13 8	237 10 8	..	....	5,401 8 4	27,749	0 3 1
3,898 4 3	....	114 10 9	4,012 15 0	....	3,438 15 0	264 0 0	..	310 0 0	4,012 15 0	15,036	0 4 3
3,526 5 8	....	121 1 0	3,647 6 8	....	3,391 6 8	256 0 0	..	....	3,647 6 8	16,574	0 3 6
4,098 8 3	....	132 13 0	4,231 5 3	....	3,124 3 5	913 9 10	193 8 0	....	4,231 5 3	16,133	0 4 2
2,817 1 10	....	161 12 6	3,978 14 4	....	2,779 12 4	872 2 0	..	327 0 0	3,978 14 4	13,181	0 4 10
35,481 8 8	1,863 15 2	1,441 14 6	38,787 6 4	17,515 4 9	17,898 3 1	2,543 6 6	193 8 0	637 0 0	38,787 6 4	88,673	0 7 0
12,868 12 9	2,071 12 8	1,088 0 6	16,028 9 11	16,028 9 11	....	....	..	....	16,028 9 11	..	....
5,337 13 10	....	172 8 9	5,510 6 7	....	3,928 9 2	280 14 8	..	1,300 14 9	5,510 6 7	28,207	0 3 2
3,272 9 8	....	101 12 4	3,374 6 0	....	3,141 4 9	233 1 3	..	....	3,374 6 0	13,072	0 4 2
4,094 9 10	....	78 2 5	4,172 12 3	....	3,218 12 8	753 1 5	..	200 14 2	4,172 12 3	12,168	0 5 6
3,085 4 2	....	109 5 6	3,194 9 8	....	2,410 13 4	783 12 4	..	....	3,194 9 8	9,955	0 5 2
3,550 13 10	.....	132 9 3	3,683 7 1	....	....	....	..	3,683 7 1	3,683 7 1	11,168	0 5 3
2,456 5 2	....	39 9 6	2,495 14 8	....	....	....	..	2,495 14 8	2,495 14 8	6,287	0 6 4
34,666 5 8	2,071 12 8	1,722 0 3	38,460 2 2	16,028 9 11	12,699 7 11	2,050 13 8	..	7,681 2 8	38,460 2 2	80,857	0 7 7
10,739 0 0	1,792 5 0	990 10 8	13,521 15 8	13,521 15 8	....	....	..	....	13,521 15 8	..	....
3,142 0 0	....	60 9 5	3,202 9 5	....	3,202 9 5	....	..	....	3,202 9 5	8,078	0 6 4
4,284 3 1	....	112 10 0	4,396 13 1	....	3,873 12 11	....	..	523 0 2	4,396 13 1	28,247	0 2 5
1,787 10 10	....	60 4 4	1,797 15 2	....	1,510 12 5	....	..	287 2 9	1,797 15 2	9,129	0 3 2
4,068 6 2	....	138 8 0	4,206 14 2	....	3,284 3 10	613 12 2	..	308 14 2	4,206 14 2	19,131	0 3 6
23,971 4 1	1,792 5 0	1,362 10 5	27,126 3 6	13,521 15 8	11,871 6 7	613 12 2	..	1,119 1 1	27,126 3 6	65,585	0 6 7
4,200 0 0	360 0 0	58 4 0	4,618 4 0	4,618 4 0	....	....	..	....	4,618 4 0	..	....
5,972 4 11	....	2,252 12 7	8,225 1 6	....	....	8,225 1 6	..	....	8,225 1 6	10,822	0 12 2
10,172 4 11	360 0 0	2,311 0 7	12,843 5 6	4,618 4 0	....	8,225 1 6	..	....	12,843 5 6	10,822	1 3 0
12,464 8 2	2,128 4 0	1,112 1 2	15,704 13 4	15,704 13 4	....	....	..	....	15,704 13 4	..	....
3,057 2 8	....	264 9 1	3,321 11 9	....	2,459 10 0	349 8 0	..	512 9 9	3,321 11 9	16,540	0 3 3
1,767 10 4	....	173 14 0	1,941 8 4	....	1,471 0 4	250 0 0	..	220 8 0	1,941 8 4	8,388	0 3 8
2,602 0 0	....	281 9 4	2,883 9 4	....	2,547 9 4	336 0 0	..	....	2,883 9 4	19,055	0 2 5
1,459 7 9	....	135 8 3	1,595 0 0	....	1,595 0 0	....	..	....	1,595 0 0	6,373	0 4 0
3,576 14 4	....	180 6 11	3,757 5 3	....	2,427 1 9	1,330 3 6	..	....	3,757 5 3	21,558	0 2 9
1,205 0 0	....	60 0 0	1,265 0 0	....	....	....	..	1,265 0 0	1,265 0 0	8,970	0 2 8
2,720 8 0	....	59 5 7	2,779 13 7	....	....	....	..	2,779 13 7	2,779 13 7	12,856	0 3 6
28,853 3 3	2,128 4 0	2,267 6 4	33,248 13 7	15,704 13 4	10,500 5 5	2,265 11 6	..	4,777 15 4	33,248 13 7	93,740	0 5 8
12,520 0 0	2,046 1 0	738 10 6	15,304 11 6	15,304 11 6	....	....	..	....	15,304 11 6	..	....
12,559 7 0	....	219 1 10	12,778 8 10	225 0 0	....	....	..	12,553 8 10	12,778 8 10	53,712	0 3 10
2,015 8 0	....	12 0 0	2,027 8 0	133 8 0	....	....	126 0 0	1,768 0 0	2,027 8 0	13,836	0 2 4
27,094 15 0	2,046 1 0	969 12 4	30,110 12 4	15,663 3 6	....	....	126 0 0	14,321 8 10	30,110 12 4	67,548	0 7 2
15,835 12 0	1,910 0 6	1,147 15 4	18,893 11 10	18,893 11 10	..	....	..	....	18,893 11 10	..	....
2,930 3 10	516 7 4	139 6 6	3,586 1 8	....	3,085 14 11	500 2 9	..	....	3,586 1 8	22,782	0 2 6
3,740 7 2	....	145 6 7	3,885 13 9	....	3,537 13 9	348 0 0	..	....	3,885 13 9	22,760	0 2 9
1,566 4 0	....	66 14 11	1,633 2 11	....	1,633 2 11	....	..	....	1,633 2 11	9,697	0 2 8
4,974 13 11	775 0 0	152 7 8	5,902 5 7	....	4,342 5 7	732 0 0	..	828 0 0	5,902 5 7	35,406	0 2 8
915 6 9	....	38 0 1	953 6 10	....	953 6 10	....	..	....	953 6 10	4,991	0 3 1
29,962 15 8	3,201 7 10	1,690 3 1	34,854 10 7	18,893 11 10	13,552 12 0	1,580 2 9	..	828 0 0	34,854 10 7	95,636	0 5 10
11,256 7 9	86 4 4	216 2 3	11,558 14 4	....	....	....	..	11,558 14 4	11,558 14 4	43,909	0 4 3
3,247 9 11	3,096 12 8	10 2 0	6,354 8 7	....	....	....	..	6,354 8 7	6,354 8 7	10,715	0 9 6
360 0 0	....	....	360 0 0	....	....	360 0 0	..	....	360 0 0	665	0 8 8
2,05,066 10 6	16,646 14 8	11,991 3 9	2,33,704 12 11	1,01,945 15 0	66,522 3 0	17,639 0 1	319 8 0	47,278 2 10	2,33,704 12 11	5,58,150	0 6 8

B.—VACCINATION RETURN.

Statement No. III. showing Dispensary Vaccination in the Bombay Presidency during the year 1878-79.

Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of successful Cases.	
							Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.
			Males.	Females.	Total.			Under 1 year.	1 and under 6.	Total of all Ages.				
1	2	3	4			5	6	7	8	9	10	11	12	13
THE NORTHERN DECCAN REGISTRATION DISTRICT.														
Khándesh Collectorate.														
Párola	..	..	139	163	302	302	310	158	134	292	..	..	96·69	..
Erandol	..	..	150	147	297	297	297	183	113	296	..	..	99·66	..
Dharángaon	..	..	P 31	23	54	82	54	29	22	51	28	23	94·44	82·14
			R 26	2	28									
Bhadgaon	..	..	12	16	28	28	28	10	16	26	..	..	92·86	..
Nandurbár	..	..	47	53	100	100	100	43	51	94	..	..	94·00	..
Chopra	..	..	98	92	190	190	190	134	53	187	..	..	98·42	..
Shirpur	..	..	19	15	34	34	35	18	11	29	..	..	85·29	..
Jalgaon	..	..	70	87	57	157	157	108	26	134	..	..	98·09	..
Total	..	..	P 566	596	1,162	149	1,171	683	426	1,109	28	23	95·44	82·14
			R 26	2	28									
Násik Collectorate.														
Sinnar	..	..	71	69	140	140	140	55	57	112	..	..	80·00	..
Dindori	..	..	62	37	99	99	99	67	23	90	..	..	90·91	..
Yeola	..	..	166	129	295	295	295	158	105	263	..	..	89·15	..
Málegaon	..	..	91	109	200	200	200	77	116	193	..	..	96·50	..
Sátana	..	..	P 39	48	87	93	92	40	33	73	6	6	83·91	100
			R 4	2	6									
Total	..	..	P 429	392	821	165	826	397	334	731	6	6	89·04	100
			R 4	2	6									
Ahmednagar Collectorate.														
Sangamner	..	..	106	93	199	199	199	69	113	182	..	..	91·46	..
Sheogaon	..	..	P 25	24	49	50	49	16	24	40	1	1	81·63	100
			R ..	1	1									
Nevása	..	..	12	15	27	27	27	3	10	13	..	..	48·15	..
Total	..	..	P 143	132	275	92	275	88	147	235	1	1	85·45	100
			R ..	1	1									
Poona Collectorate.														
Junnar	..	..	116	121	237	237	237	128	109	237	..	..	100	..
Indápur	..	..	P 36	39	75	79	77	39	32	71	4	4	94·67	100
			R 2	2	4									
Sirur	..	..	12	14	26	26	26	7	16	23	..	..	88·46	..
Talegaon Dhamdhera	..	..	39	49	88	88	88	41	36	77	..	..	87·50	..
Sásvad	..	..	112	90	202	202	202	98	90	188	..	..	93·07	..
Jejuri	..	..	36	29	65	65	65	31	22	53	..	..	81·54	..
Khed	..	..	56	60	116	116	116	43	63	106	..	..	91·38	..
Bárámati	..	..	8	8	16	16	16	7	6	13	..	..	81·25	..
Total	..	..	P 415	410	825	104	827	394	374	768	4	4	93·09	100
			R 2	2	4									
Native States.														
Peint State	..	..	17	17	34	34	34	14	11	26	..	..	76·47	..
TOTAL FOR THE NORTHERN DECCAN REGISTRATION DISTRICT.	..	..	P 1,570	1,547	3,117	126	3,133	1,576	1,292	2,869	39	34	92·04	87·18
			R 32	7	39									
THE SOUTHERN DECCAN REGISTRATION DISTRICT.														
Sátára Collectorate.														
Wái	..	..	P 100	105	205	212	207	45	131	178	7	7	86·33	100
			R 7	..	7									
Pátan	..	..	34	36	70	70	70	57	13	70	..	..	100	..
Islámpur	..	..	P 142	140	282	286	283	169	96	266	4	4	94·33	100
			R 1	3	4									
Karád	..	..	P 145	102	247	257	249	145	98	243	10	4	98·38	50·00
			R 10	..	10									
Tásgaon	..	..	36	38	74	74	75	55	11	66	..	..	89·19	..
Mhasvad	..	..	44	43	87	87	87	28	48	76	..	..	87·36	..
Pusesávli	..	..	45	42	87	87	87	57	24	84	..	..	96·55	..
Mahábaleshvar	..	..	10	20	30	30	30	8	22	30	..	..	100	..
Total	..	..	P 556	526	1,082	138	1,088	564	443	1,013	21	15	93·62	71·43
			R 18	3	21									

Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of Persons Vaccinated			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of successful Cases.	
							Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.
								Under 1 year.	1 and under 6.	Total of all Ages.				
1	2	3	4			5	6	7	8	9	10	11	12	13
THE SOUTHERN DECCAN REGISTRATION DISTRICT—*continued*.			Males.	Females	Total.									
Belgaum Collectorate.														
Parasgad	..	..	P 54	67	121	146	121	35	83	119	25	13	98·35	52·00
			R 16	9	25									
Gokák	..	..	32	29	61	61	61	24	27	51	..	..	83·61	..
Athni	..	..	93	77	170	170	170	65	54	119	..	..	70·00	..
Total	..	..	P 179	173	352	126	352	124	164	289	25	13	82·10	52·00
			R 16	9	25									
Kolhápur States.														
Kolhápur	..	..	P 365	377	742	1,130	742	339	286	625	388	303	40·84	78·09
			R 278	110	388									
Southern Maratha Jaghirs.														
Miraj	..	..	..	52	43	95	95	95	40	42	91	..	..	95·79	..
Mudhol	..	..	..	63	51	114	114	114	37	71	108	..	..	94·74	..
Total	..	..	..	115	94	209	104	209	86	113	199	..	..	95·22	..
Native States, Total	..	..	P 480	471	951	446	951	425	399	824	388	303	86·65	78·09
			R 278	110	388									
Total for the Southern Deccan Registration District	..	..	P 1,215	1,170	2,385	201	2,391	1,113	1,006	2,126	434	331	89·14	76·27
			R 312	122	434									
THE KONKAN REGISTRATION DISTRICT.														
Kánara Collectorate.														
Kárwár	..	..	P 67	73	140	144	140	32	75	117	4	4	83·57	100
			R 2	2	4									
Cumpta	..	..	P 110	99	209	234	219	66	72	153	25	4	73·21	16·00
			R 23	2	25									
Honávar	..	..	P 86	85	171	178	171	36	98	163	7	6	95·32	85·71
			R 1	6	7									
Sirsi	..	..	60	74	134	134	134	27	81	108	..	..	80·60	..
Siddápur	..	..	37	23	60	60	60	11	40	51	..	..	85·00	..
Yellápur	..	..	34	25	59	59	60	17	33	50	..	..	84·75	..
Haliyál	..	..	39	36	75	75	75	44	15	59	..	..	80·60	..
Supa	..	..	2	8	10	10	10	1	5	6	..	..	60·00	..
Mundgod	..	..	P 21	23	44	45	44	8	35	43	1	1	97·73	100
			R 1	..	1									
Total	..	..	P 458	446	902	104	913	242	454	750	37	15	83·15	40·54
			R 27	10	37									
Ratnágiri Collectorate.														
Dápoli	..	..	30	34	64	64	71	47	12	59	..	..	92·19	..
Vengurla	..	..	35	36	71	71	71	19	32	51	..	..	71·83	..
Total	..	..	65	70	135	67	142	66	44	110	..	..	81·48	..
Kolába Collectorate.														
Ahbág	..	..	6	14	20	20	20	11	8	19	..	..	95·00	..
Pen	..	..	P 49	44	93	94	93	66	20	86	1	1	92·47	100
			R 1	..	1									
Mahád	..	..	50	47	97	97	97	48	45	93	..	..	95·88	..
Total	..	..	P 105	105	210	70	210	125	73	198	1	1	94·29	100
			R 1	..	1									

Districts.	Number of Dispensaries in each District to which a Vaccinator is attached	Average number of Vaccinators attached to Dispensaries during the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of successful Cases.	
							Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.
								Under 1 year.	1 and under 6.	Total of all Ages.				
1	2	3	4			5	6	7	8	9	10	11	12	13
	THE KONKAN REGISTRATION DISTRICT—*continued.*		Males.	Females.	Total.									
Thána Collectorate.	Thána Police Corps	..	P 30	12	42	65	43	14	18	42	23	11	100	47·83
		..	R 23	..	23									
	Do. Jail	..	R 595	130	725	725	..	..	..	..	725	526	..	72·55
	Kalyán	..	76	60	136	136	136	53	55	108	..	..	79·41	..
	Bándra	..	79	85	164	164	164	59	86	148	..	..	90·24	..
	Uran	..	23	36	59	59	60	38	20	58	..	..	98·31	..
	Bhiwndi	..	31	35	66	66	66	23	39	62	..	..	93·94	..
	Kurla	..	P 102	71	173	180	173	91	43	134	7	7	77·46	100
		..	R 3	4	7									
	Bassein	..	P 112	110	222	224	222	117	100	218	2	..	98·20	..
		..	R 2	..	2									
	Máhim	..	P 90	71	161	163	173	68	89	157	2	2	97·52	100
		..	R 2	..	2									
	Mátheráu	..	11	10	21	21	21	4	5	9	..	..	42·86	..
	Sháhápur	..	P 4	2	6	7	6	2	3	6	1	1	100	100
		..	R 1	..	1									
	Chinchni	..	62	58	120	120	120	53	65	118	..	..	98·33	..
	Total ..	..	P 620	550	1,170	161	1,184	522	523	1,060	760	547	90·60	72·97
		..	R 626	134	760									
Native States.	Sávantvádi State	..	P 78	80	158	228	163	64	60	124	70	4	78·48	5·71
		..	R 59	11	70									
	TOTAL FOR THE KONKAN REGISTRATION DISTRICT ..	..	P 1,324	1,251	2,575	128	2,612	1,019	1,154	2,242	868	567	87·07	65·32
		..	R 713	155	868									
	THE EASTERN GUJARAT REGISTRATION DISTRICT.													
Surat Collectorate.	Ránder	..	P 132	115	247	249	247	176	63	242	2	1	97·98	50·00
		..	R 2	..	2									
	Bárdoli	..	75	72	147	147	147	103	25	130	..	..	88·44	..
	Mándvi	..	38	37	75	75	75	43	13	56	..	..	74·67	..
	Olpád	..	P 18	32	50	51	51	33	15	49	1	1	98·00	100
		..	R 1	..	1									
	Chikhli	..	40	38	78	78	78	61	17	78	..	..	100	..
	Bulsár	..	P 130	119	249	253	250	141	91	238	4	2	95·58	50·00
		..	R 4	..	4									
	Párdi	..	P 92	78	170	174	173	111	47	158	4	..	92·94	..
		..	R 1	3	4									
	Kaliawari	..	36	26	62	62	62	30	32	62	..	..	100	..
	Total ..	..	P 561	517	1,078	136	1,083	698	303	1,013	11	4	93·97	36·36
		..	R 8	3	11									
Broach Collectorate.	Anklesvar	..	P 74	70	144	145	146	107	25	132	1	1	91·67	100
		..	R ..	1	1									
	Hánsot	..	37	21	58	58	58	32	15	47	..	..	81·03	..
	Iláv	..	30	18	48	48	51	24	15	39	..	..	81·25	..
	Jambusar	..	P 177	160	337	339	337	207	126	333	2	2	98·81	100
		..	R 2	..	2									
	Total ..	..	P 318	269	587	147	592	370	181	551	3	3	93·87	100
		..	R 2	1	3									
Kaira Collectorate.	Kaira Jail	..	233	10	243	243	243	2	..	241	..	..	99·18	..
	Kaira Police	..	2	5	7	7	7	2	2	4	..	..	57·14	..
	Dákor	..	P 76	54	130	132	130	112	15	127	2	2	97·69	100
		..	R 1	1	2									
	Kapadvanj	..	341	344	685	685	689	516	142	658	..	..	96·06	..
	Borsad	..	P 97	90	187	190	187	155	17	172	3	2	91·98	66·67
		..	R 2	1	3									
	Mehmadabad	..	P 156	143	299	356	299	277	17	297	57	44	99·33	77·19
		..	R 56	1	57									
	Mahudha	..	146	89	235	235	235	127	53	180	..	..	76·60	..
	Total ..	..	P 1,051	735	1,786	231	1,790	1,191	246	1,679	62	48	94·01	77·42
		..	R 59	3	62									

	Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of successful Cases.	
								Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.
									Under 1 year.	1 and under 6.	Total of all Ages.				
1		2	3	4			5	6	7	8	9	10	11	12	13
	THE EASTERN GUJARʼAT REGISTRTION DISTRICT—*continued.*			Males.	Females.	Total.									
Panch Mahals.	Godhra	..	..	P 190 R 266	168 17	358 283	641	361	313	22	335	283	160	93·58	56·54
Ahmedabad Collectorate.	Dholera	..	..	127	147	274	274	274	211	47	258	..	..	94·16	..
	Sánand	..	..	133	96	229	229	229	199	30	229	..	..	100	..
	Paránti	..	..	P 122 R ..	113 1	235 1	236	235	192	43	235	1	..	100	..
	Khárághoda	..	..	17	11	28	28	30	16	3	19	..	..	67·86	..
	Total ..	..	..	P 399 R ..	367 1	766 1	192	768	618	123	741	1	..	96·74	..
Rewa-Kántha States.	Báriya	..	..	P 35 R 16	44 ..	79 16	95	79	25	50	78	16	10	98·73	62·50
Mahi Kántha Agency.	Sádra	..	..	P 76 R 20	80 1	156 21	177	157	125	23	151	21	16	96·79	76·19
	Native States, Total ..	..	..	P 111 R 36	124 1	235 37	136	236	150	73	229	37	26	97·45	70·27
	TOTAL FOR THE EASTERN GUJARʼAT REGISTRATION DISTRICT.	..	..	P 2,630 R 371	2,180 26	4,810 397	200	4,830	3,340	948	4,548	397	244	94·55	60·71
	THE WESTERN GUJARAʼT CIRCLE.														
Káthiáwár.	Rájkot	..	..	R 134	2	136	136	..	..	..	..	136	58	.. ..	42·65
	Wadhwán	..	..	P 31 R 6	31 5	62 11	73	66	45	11	58	11	3	93·54	27·27
	Mánekváda	..	..	7	9	16	16	16	13	3	16	..	..	100	..
	Songad	..	..	19	17	36	36	36	15	19	34	..	..	94·44	..
	Total ..	..	..	P 57 R 140	57 7	114 147	65	118	73	33	108	147	61	94·74	41·50
Native States.	Gondal	..	..	129	150	279	279	287	208	30	244	..	..	87·46	..
	Dhoráji	..	..	P 78 R 5	63 ..	141 5	146	141	51	28	79	5	4	56·03	80·00
	Upleta	..	..	P 40 R 1	64 ..	104 1	105	104	56	42	99	1	1	95·19	100
	Bháyávadar	..	..	26	29	55	55	55	55	..	55	..	..	100	..
	Sársai	..	..	6	12	18	18	18	11	3	14	..	..	77·78	..
	Limbdi	..	..	P 199 R 5	166 9	365 14	379	365	205	87	294	14	9	80·55	64·29
	Total ..	..	..	P 478 R 11	484 9	962 20	164	970	586	190	785	20	14	81·60	70·00
	TOTAL FOR THE WESTERN GUJARAʼT CIRCLE	..	..	P 535 R 151	541 16	1,076 167	124	1,088	659	223	893	167	75	82·99	44·91
	THE SIND REGISTRATION DISTRICT.														
Kurrachee Collectorate.	Manori	..	..	P 27 R ..	29 2	56 2	58	61	26	25	51	2	1	91·07	50·00
	Keti Bandar	..	..	5	3	8	8	8	..	..	..	..	..	....	..
	Mirpur Batoro	..	..	P 41 R 24	32 3	73 27	100	74	65	7	72	27	27	98·63	100·
	Tatta	..	..	P 37 R 2	22 ..	59 2	61	61	14	18	32	2	1	54·24	50·00
	Jerruck	..	..	P 16 R 1	15 3	31 4	35	31	24	3	27	4	4	87·10	100
	Bulakhan	..	..	8	10	18	18	20	15	3	18	..	..	100·	..
	Sehwan	..	..	P 99 R 36	100 24	199 60	259	199	61	30	104	60	6	52·26	10·00
	Total ..	..	..	P 233 R 63	211 32	444 95	77	454	205	86	304	95	39	68·47	41·05

Districts.		Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of sucessful Cases.	
								Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.
									Under 1 year.	1 and under 6.	Total of all Ages.				
1		2	3	4			5	6	7	8	9	10	11	12	13
	THE SIND REGISTRATION DISTRICT—*continued.*			Males.	Females.	Total.									
Hyderabad Collectorate.	Thárú Sháh	..	..	P. 37	26	63	94	63	38	18	56	31	22	88·89	70·97
				R. 28	3	31									
	Hála	..	..	P. 59	40	99	217	99	50	45	95	118	83	95·96	70·34
				R. 116	2	118									
	Alahyar-jo-Tando	..	..	42	18	60	60	61	21	14	39	..	..	65·00	..
	Mirpur Khás	..	..	P. 20	20	40	85	40	11	20	31	45	18	77·50	40·00
				R. 44	1	45									
	Adam-jo-Tando	..	..	P. 37	19	56	58	56	26	24	50	2	..	89·29	..
				R. 1	1	2									
	Tando	..	..	38	28	66	66	66	37	26	63	..	..	95·45	..
	Tando Bágo	..	..	16	11	27	27	27	14	13	27	..	..	100·00	..
	Total	..	..	P. 249	162	411	87	412	197	160	361	196	123	87·83	62·76
				R. 189	7	196									
Thar and Párkar.	Nagar Párkar	..	..	53	48	101	101	115	45	46	93	..	..	92·08	..
	Mitti	..	..	P. 38	38	76	131	76	49	19	68	55	37	89·47	67·27
				R. 53	2	55									
	Umarkot	..	..	38	8	46	46	46	15	11	34	..	..	73·91	..
	Khipra	..	..	P. 18	8	26	27	26	10	12	23	1	1	88·46	100
				R. 1	..	1									
	Total	..	..	P. 147	102	249	76	263	119	88	218	56	38	88·43	67·86
				R. 54	2	56									
Shikárpur Collectorate.	Rohri	..	..	P. 224	164	388	1,579	388	358	23	385	1,191	808	99·23	67·84
				R. 1,182	9	1,191									
	Mehar	..	..	P. 53	33	86	116	86	62	21	83	30	30	96·51	100
				R. 28	2	30									
	Lárkhána	..	..	P. 196	155	351	456	364	209	42	256	114	24	72·93	22·86
				R. 85	20	105									
	Total	..	..	P. 473	352	825	717	838	629	86	724	1,335	862	87·76	65·01
				R. 1,295	31	1,326									
Mekran Coast.	Guadar	..	..	23	7	30	30	30	26	4	30	..	..	100	..
	TOTAL FOR THE SIND REGISTRATION DISTRICT	..	..	P. 1,125	834	1,959	165	1,997	1,176	424	1,637	1,682	1,062	83·56	63·42
				R. 1,601	72	1,673									
	THE BARODA CIRCLE.														
Native States.	Petlád	..	..	83	69	152	152	152	112	40	152	..	..	100	..
	Dabhoi	..	..	77	89	166	166	171	131	33	166	..	..	100	..
	Sojitra	..	..	143	96	239	239	239	174	65	239	..	..	100	..
	Sidhpur	..	..	43	43	86	86	86	52	25	78	..	..	90·70	..
	Degám	..	..	73	73	146	146	146	105	38	143	..	..	97·95	..
	Pátan	..	..	255	190	445	445	445	395	44	441	..	..	99·10	..
	Navsári	..	..	22	8	30	30	30	20	7	27	..	..	90·00	..
	Dwárka	..	..	6	1	7	7	7	4	2	6	..	..	85·71	..
	Amreli	..	..	P. 249	224	473	475	473	336	134	470	2	2	99·37	100
				R. 1	1	2									
	Dhári	..	..	51	53	104	104	104	72	30	103	..	..	99·04	..
	TOTAL FOR THE BARODA CIRCLE.	..	..	P. 1,002	846	1,848	185	1,853	1,401	418	1,825	2	2	98·76	100
				R. 1	1	2									
	Bassadore	..	..	P. 8	3	11	13	11	1	10	11	2	2	100	100
				R. 1	1	2									
	Civil Hospital, Maskat	..	..	P. 47	59	106	110	106	15	29	82	5	4	77·36	100
				R. 4	..	4									
	Total for the British Territory	..	..	P. 7,233	6,352	13,585	150	13,696	7,587	4,320	12,312	2,932	1,908	90·63	65·30
				R. 2,661	261	2,922									
	Total for the Native States	..	..	P. 2,223	2,079	4,302	184	4,325	2,713	1,184	3,921	664	410	91·14	61·75
				R. 525	139	664									
	GRAND TOTAL FOR THE BOMBAY PRESIDENCY	..	..	P. 9,456	8,431	17,887	157	18,021	10,300	5,504	16,233	3,596	2,318	90·75	64·64
				R. 3,186	400	3,586									

Comparative Statement No. IV. showing the number of Persons primarily Vaccinated and the number of those Persons who were successfully Vaccinated in each of the undermentioned official years.

Establishments.	Persons Primarily Vaccinated.																			
	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.
	Years ended 31st March.																			
	1870.		1871.		1872.		1873.		1874.		1875.		1876.		1877.		1878.		1879.	
Government	280,148	261,554	245,625	229,514	79,022	73,398	3,446	3,012	3,208	2,867	4,517	4,365	4,706	4,552	5,518	5,346	5,472	5,311	4,630	4,444
Municipal	26,169	24,036	41,099	35,055	55,011	44,879	53,415	45,372	51,313	44,129	54,810	51,162	59,392	55,698	61,671	58,300	50,250	46,355	42,211	39,129
Local Fund	28,726	27,270	59,082	55,247	221,483	208,413	309,666	283,655	357,162	326,852	377,558	361,689	375,202	364,503	394,775	382,211	340,998	326,670	304,420	292,640
Cantonment	*	*	*	*	*	*	*	*	1,103	999	969	906	1,018	965	827	771	845	804	872	846
Native State	112,937	105,219	133,977	123,091	152,213	142,039	180,314	163,891	188,788	171,657	209,689	195,729	224,730	211,316	242,391	226,402	246,773	228,333	188,447	174,757
Dispensary	9,882	8,405	9,241	7,894	13,792	11,998	16,685	14,652	18,560	16,403	19,393	17,463	19,954	18,156	19,996	18,486	20,201	17,904	17,887	16,233
Army. European	907	907	960	960	1,080	1,080	1,517	1,517	1,122	1,122	728	728	825	825	1,973	1,973	1,313	1,313	494	453
Army. Native	5,898	†	6,598	†	4,552	4,211	4,982	4,627	4,562	4,246	4,153	3,940	4,812	4,541	5,033	4,659	4,203	3,920	3,008	2,719
Total ..	464,667	427,391	496,582	452,661	527,153	486,018	570,025	516,726	625,818	568,275	671,817	635,982	690,639	660,556	732,184	698,148	670,055	630,590	561,969	531,221

Note.—Re-vaccinations are wholly excluded from this Statement.
* The figures are included in those for the Native Army.
† The figures are not available.

STATEMENT appended to MAP illustrating the Distribution, &c., of CHOLERA in the BOMBAY PRESIDENCY during the Year 1878.

1	2	3		4	5	6	7	8	9		10	11	
District.	Number of Circles as shown in the Map.	Name of Circle.		Population of Circle.	Date of first case of Cholera in the Circle during the year.	Date of last case of Cholera in the Circle during the year	Total Deaths from Cholera in the Circle during the year.	Ratio per 10,000	Period of maximum intensity of the diseases		Number of villages in each of the Rural Circles.	Number of those	
									From	To		Affected by Cholera.	Not affected by Cholera.
Khándesh.	1	Dhulia	R. C.	54,440	22nd June 1878.	30th Sept. 1878.	167	30·68	August 1878.	August 1878.	189	18	171
	2	Amalner	,,	51,611	2nd ,, ,,	19th ,, ,,	357	69·56	July ,,	,, ,,	278	24	245
	3	Párola	,,	28,252	23rd July ,,	12th ,, ,,	178	63·00	,, ,,	,, ,,		9	
	4	Erandol	,,	76,689	14th ,, ,,	30th ,, ,,	370	48·25	,, ,,	,, ,,	229	21	208
	5	Páchora	,,	54,313	24th ,, ,,	,, ,, ,,	575	105·87	August ,,	Sept. ,,	228	56	152
	6	Bhadgaon	,,	30,567	23rd ,, ,,	29th ,, ,,	137	44·82	,, ,,	August ,,		20	
	7	Chálisgaon	,,	44,568	2nd ,, ,,	9th ,, ,,	311	69·79	,, ,,	,, ,,	141	22	119
	8	Pimpalner	,,	42,715	3rd Aug. ,,	31st Dec. ,,	105	24·58	Nov. ,,	Nov. ,,	..	14	..
	9	Nizámpur	,,	17,410	18th Sept. ,,	29th Sept. ,,	3	1·72	Sept. ,,	Sept. ,,	301	1	300
	10	Nandurbár	,,	38,080	24th June ,,	5th ,, ,,	192	50·42	June ,,	August ,,	218	16	202
	11	Taloda	,,	35,278	23rd May ,,	17th Aug. ,,	288	81·64	,, ,,	July ,,	300	24	276
	12	Sháháda	,,	46,228	28th June ,,	26th ,, ,,	188	46·12	July ,,	,, ,,	208	17	191
	13	Virdel	,,	63,350	15th ,, ,,	22nd Sept. ,,	449	70·87	,, ,,	August ,,	168	38	130
	14	Shirpur	,,	34,642	28th May ,,	30th ,, ,,	355	102·48	June ,,	July ,,	183	37	146
	15	Chopda	,,	37,882	18th June ,,	21st ,, ,,	223	58·87	July ,,	August ,,	146	22	124
	16	Sávda	,,	64,644	15th July ,,	30th ,, ,,	164	25·37	August ,,	,, ,,		22	
	17	Yával	,,	34,574	24th ,, ,,	,, ,, ,,	135	39·06	,, ,,	,, ,,	306	12	246
	18	Ráver	,,	25,301	15th ,, ,,	,, ,, ,,	239	94·46	,, ,,	,, ,,		26	
	19	Bhusával	,,	62,398	13th ,, ,,	5th Oct. ,,	211	33·28	July ,,	,, ,,	244	18	209
	20	Edalábad	,,	20,847	5th June ,,	30th Sept. ,,	164	78·67	,, ,,	July ,,		17	
	21	Nasirábad	,,	50,168	16th ,, ,,	,, ,, ,,	229	45·65	August ,,	August ,,	111	34	77
	22	Jámner	,,	70,351	25th July ,,	18th ,, ,,	547	77·75	,, ,,	,, ,,	197	40	157
	23	Dhulia	T. C.	12,489	15th ,, ,,	23rd Aug. ,,	110	88·08	July ,,	,, ,,	1	1	..
	24	Nandurbár	,,	7,205	2nd ,, ,,	25th ,, ,,	61	84·66	,, ,,	July ,,	1	1	..
	25	Chopda	,,	13,699	25th June ,,	31st ,, ,,	163	119·00	,, ,,	,, ,,	1	1	..
	26	Nasirábad	,,	9,941	8th July ,,	29th Sept. ,,	156	156·93	August ,,	Sept. ,,	1	1	..
Násik.	27	Násik	R. C.	66,941	8th Oct. ,,	27th Oct. ,,	1	0·15	October ,,	October ,,	138	1	137
	28	Sinnar	,,	64,872	7th Aug. ,,	16th ,, ,,	123	18·96	August ,,	Sept. ,,	103	12	91
	29	Igátpuri	,,	57,735	14th Sept. ,,	22nd Sept. ,,	11	1·91	Sept. ,,	,, ,,	130	1	129
	30	Dindori	,,	68,626	9th Oct. ,,	15th Oct. ,,	1	0·15	October ,,	October ,,	128	1	127
	31	Niphád	,,	86,017	23th July ,,	27th Nov. ,,	122	14·18	August ,,	Sept. ,,	122	15	107
	32	Chándor	,,	50,130	28th ,, ,,	31st Oct. ,,	96	19·15	Sept. ,,	,, ,,	112	11	101
	33	Sávargaon or Yeola	,,	41,852	12th Aug. ,,	27th Sept. ,,	74	17·68	August ,,	,, ,,	120	10	110
	34	Nándgaon	,,	30,230	21st July ,,	30th ,, ,,	185	61·19	,, ,,	August ,,	92	27	65
	35	Málegaon	,,	62,716	31st ,, ,,	,, ,, ,,	119	18·97	,, ,,	Sept. ,,	153	1	152
	36	Bágián	,,	59,051	1st Sept. ,,	25th Nov. ,,	54	9·14	Sept. ,,	,, ,,	101	7	94
	37	Kalvan	,,	54,152	10th ,, ,,	7th Oct. ,,	44	8·12	,, ,,	,, ,,	Unknown.	4	..
	38	Násik	T. C.	22,436	23rd ,, ,,	24th ,, ,,	37	16·49	,, ,,	,, ,,	1	1	..
	39	Málegaon	C. T.	4,240	28th Aug. ,,	11th Sept. ,,	4	9·43	,, ,,	,, ,,	1	1	..
Ahmednagar.	40	Nagar	R. C.	73,064	21st June ,,	29th Oct. ,,	381	52·15	July ,,	August ,,	116	32	84
	41	Akola	,,	60,591	20th Sept. ,,	15th ,, ,,	17	2·81	Sept. ,,	October ,,	157	4	153
	42	Jámkhed	,,	72,994	29th April ,,	25th ,, ,,	243	33·30	July ,,	August ,,	77	21	56
	43	Párner	,,	82,422	22nd ,, ,,	26th Aug. ,,	96	11·64	June ,,	,, ,,	122	14	108
	44	Shrigonda	,,	64,936	6th June ,,	31st ,, ,,	106	16·32	,, ,,	July ,,	86	11	75
	45	Karjat	,,	48,766	20th May ,,	28th ,, ,,	132	27·07	,, ,,	,, ,,	82	8	74
	46	Nevása	,,	62,418	25th ,, ,,	14th Sept. ,,	341	54·63	,, ,,	,, ,,	148	37	111
	47	Kopargaon	,,	60,839	8th July ,,	12th ,, ,,	69	11·34	August ,,	August ,,	125	3	122
	48	Sangamner	,,	58,787	11th ,, ,,	25th Oct. ,,	109	18·54	,, ,,	Sept. ,,	154	12	142
	49	Ráhuri	,,	59,093	22nd ,, ,,	28th Sept. ,,	22	3·72	Sept. ,,	,, ,,	118	6	112
	50	Sevgaon	,,	83,226	26th May ,,	24th ,, ,,	264	31·72	July ,,	July ,,	188	24	164
	51	Ahmednagar ..	T. C.	32,841	6th June ,,	11th Oct. ,,	420	127·93	,, ,,	,, ,,	1	1	..
	52	Sangamner ..	,,	9,978	8th Sept. ,,	28th Sept. ,,	61	61·13	Sept. ,,	Sept. ,,	1	1	..
	53	Ahmednagar ..	C. T.	3,983	1st Aug. ,,	21st ,, ,,	6	15·06	August ,,	,, ,,	1	1	..
Poona.	54	Junnar	R. C.	96,578	3rd May ,,	30th ,, ,,	203	21·02	,, ,,	August ,,	163	23	140
	55	Indápur	,,	62,292	1st ,, ,,	31st July ,,	330	52·89	May ,,	June ,,	86	17	69
	56	Khed	,,	139,152	16th April ,,	30th Sept. ,,	691	49·66	,, ,,	August ,,	244	41	203
	57	Sirúr	,,	76,984	16th Feb. ,,	20th Oct. ,,	372	48·32	,, ,,	July ,,	77	25	52
	58	Purandhar	,,	75,782	17th April ,,	8th Aug. ,,	388	51·23	June ,,	June ,,	92	27	65
	59	Bhimthadi	,,	115,297	19th May ,,	30th July ,,	492	42·68	,, ,,	July ,,	129	30	99
	60	Haveli	,,	155,082	26th March ,,	,, ,, ,,	418	26·95	,, ,,	,, ,,	237	37	200
	61	Mával	,,	56,834	16th Feb. ,,	8th Aug. ,,	223	39·23	,, ,,	,, ,,	168	20	147
	62	Poona City ..	T. C.	90,436	1st Jan. ,,	,, Sept. ,,	457	50·53	,, ,,	,, ,,	1	1	..
	93	Junnar	,,	10,498	1st Aug. ,,	31st Aug. ,,	1	0·97	August ,,	August ,,	1	1	..
	64	Poona and Kirkee	C. T.	28,450	16th April ,,	27th ,, ,,	26	9·14	July ,,	July ,,	1	1	..
Sholápur.	65	Sholápur	R. C.	127,184	19th ,, ,,	31st ,, ,,	574	45·13	May ,,	May ,,	149	50	99
	66	Bársi	,,	112,293	15th ,, ,,	10th ,, ,,	444	39·54	,, ,,	July ,,	123	46	77
	67	Mádha	,,	103,981	30th ,, ,,	25th ,, ,,	188	18·08	,, ,,	May ,,	90	23	67
	68	Karmál	,,	105,291	5th May ,,	29th ,, ,,	364	34·57	June ,,	July ,,	123	36	87
	69	Pandharpur	,,	63,039	27th April ,,	22nd ,, ,,	302	47·91	May ,,	May ,,	84	25	59
	70	Sángola	,,	62,960	11th May ,,	3rd ,, ,,	137	21·76	,, ,,	July ,,	77	16	61
	71	Málsiras	,,	55,048	1st ,, ,,	31st ,, ,,	277	50·32	June ,,	June ,,	69	23	46
	72	Sholápur	T. C.	58,403	30th April ,,	,, ,, ,,	309	57·86	May ,,	May ,,	1	1	..
	73	Bársi	,,	18,560	19th ,, ,,	22nd ,, ,,	259	139·55	,, ,,	July ,,	1	1	..
	74	Pandharpur ..	,,	16,275	13th July ,,	31st July ,,	220	135·18	July ,,	,, ,,	1	1	..
Sátára.	75	Sátára	R. C.	90,629	12th May ,,	15th Oct. ,,	787	86·84	May ,,	June ,,	147	69	78
	76	Jávli	,,	59,836	21st ,, ,,	9th Aug. ,,	179	29·92	June ,,	,, ,,	250	20	230
	77	Bái	,,	75,033	17th April ,,	9th Sept. ,,	629	83·83	,, ,,	,, ,,	126	64	62
	78	Karád	,,	121,712	5th May ,,	16th ,, ,,	937	76·98	,, ,,	July ,,	103	61	42
	79	Válva	,,	156,089	1st ,, ,,	15th Aug. ,,	634	40·62	June ,,	June ,,	139	35	104
	80	Tásgaon	,,	87,975	18th April ,,	,, ,, ,,	277	31·49	May ,,	July ,,	49	20	29
	81	Khánápur	,,	76,783	21st May ,,	16th ,, ,,	292	38·03	June ,,	,, ,,	91	30	61
	82	Khatáv	,,	81,950	30th April ,,	31st July ,,	264	32·22	July ,,	,, ,,	87	24	63
	83	Mán	,,	62,198	28th May ,,	28th Sept. ,,	151	24·28	June ,,	June ,,	77	16	61
	84	Malcolm Peit ..	,,	4,006	4th June ,,	22nd June ,,	6	14·98	,, ,,	,, ,,	1	1	..
	85	Koregaon	,,	82,344	20th May ,,	30th Sept. ,,	398	48·33	,, ,,	,, ,,	74	26	48
	86	Pátan	,,	115,491	28th ,, ,,	31st July ,,	305	26·49	,, ,,	July ,,	205	24	181
	87	Sátára	T. C.	24,484	14th ,, ,,	25th Aug. ,,	166	67·80	May ,,	June ,,	1	1	..
	88	Karád	,,	11,410	12th ,, ,,	18th ,, ,,	136	119·20	June ,,	,, ,,	1	1	..
	89	Wái	,,	11,062	22nd ,, ,,	30th June ,,	225	203·39	,, ,,	,, ,,	1	1	..
Belgaum.	90	Belgaum	R. C.	102,344	1st Jan. ,,	22nd July ,,	668	65·27	May ,,	May ,,	201	38	163
	91	Sampgaon	,,	131,504	,, ,, ,,	26th ,, ,,	1,612	126·38	April ,,	,, ,,	140	82	58
	92	Bidi	,,	78,875	7th Feb. ,,	30th June ,,	257	32·58	May ,,	,, ,,	240	20	220
	93	Chikodi	,,	248,685	6th Jan. ,,	28th Sept. ,,	1,239	31·09	April ,,	June ,,	216	67	149
	94	Parasgad	,,	120,691	1st ,, ,,	11th June ,,	1,254	103·96	,, ,,	May ,,	133	73	60
	95	Gokák	,,	97,085	,, ,, ,,	17th ,, ,,	536	55·21	March ,,	April ,,	118	32	86
	96	Athni	,,	103,089	19th April ,,	27th ,, ,,	48	4·65	May ,,	May ,,	82	6	76
	97	Belgaum	T. C.	26,947	1st Jan. ,,	29th ,, ,,	66	24·12	April ,,	April ,,	1	1	..
	98	Gokák	,,	12,612	2nd ,, ,,	21st May ,,	42	33·30	,, ,,	,, ,,	1	1	..
	99	Athni	,,	11,588	1st May ,,	21st July ,,	6	5·18	June ,,	June ,,	1	1	..
	100	Belgaum	C. T.	5,330	12th Jan. ,,	20th June ,,	29	54·39	May ,,	May ,,	1	1	..

1	2	3		4	5	6	7	8	9		10	11	
District.	Number of Circles as shown in the Map.	Name of Circle.		Population of Circle.	Date of first case of Cholera in the Circle during the year.	Date of last case of Cholera in the Circle during the year.	Total Deaths from Cholera in the Circle during the year.	Ratio per 10,000.	Period of maximum intensity of the diseases.		Number of Villages in each of the Rural Circle.	Number of those	
									From	To		Affected by Cholera.	Not affected by Cholera.
Dhárwár.	101	Dhárwár	R. C.	72,295	6th Mar. 1878.	8th Sept. 1878.	685	94·75	March 1878.	June 1878.	170	30	140
	102	Mugúd Petha ..	,,	24,299	23rd ,, ,,	7th July ,,	91	37·45	April ,,	April ,,	Not known.	6	..
	103	Hubli	,,	63,277	5th April ,,	16th Sept. ,,	202	31·92	August ,,	August ,,	91	13	78
	104	Navalgund ..	,,	86,840	19th Mar. ,,	23rd ,, ,,	86	9·90	May ,,	May ,,	93	14	73
	105	Nargund	,,	17,860	20th April ,,	31st May ,,	53	29·67	,, ,,	,, ,,		6	
	106	Gadag	,,	66,792	20th May ,,	17th Sept. ,,	109	16·32	July ,,	July ,,	Not known.	6	..
	107	Kalghatghi ..	,,	52,729	27th April ,,	30th ,, ,,	55	10·43	April ,,	April ,,	131	6	125
	108	Bankápur	,,	83,175	21st May ,,	31st Aug. ,,	88	10·58	August ,,	August ,,	160	8	152
	109	Ron	,,	68,321	1st ,, ,,	23rd July ,,	116	16·98	June ,,	June ,,	59	15	44
	110	Harjghi	,,	95,217	31st ,, ,,	18th Aug. ,,	17	17·85	,, ,,	,, ,,	136	4	132
	111	Hángal	,,	72,572	29th June ,,	25th July ,,	20	2·75	July ,,	July ,,	174	2	172
	112	Ránebennur ..	,,	74,978	20th May ,,	24th May ,,	14	1·87	May ,,	May ,,	128	3	125
	113	Kod	,,	79,100	18th June ,,	14th July ,,	28	3·54	June ,,	July ,,	189	1	188
	114	Dhárwár	T. C.	27,136	17th Mar. ,,	26th June ,,	73	26·90	April ,,	May ,,	1	1	..
	115	Hubli	,,	37,961	8th April ,,	28th Sept. ,,	144	37·96	July ,,	August ,,	1	1	..
	116	Gadag Betgeri ..	,,	19,035	6th June ,,	26th July ,,	9	4·73	,, ,,	July ,,	1	1	..
Kaládgi.	117	Indi	R. C.	105,475	7th May ,,	20th July ,,	547	51·86	June ,,	June ,,	125	26	99
	118	Muddebihál ..	,,	83,848	25th April ,,	11th June ,,	175	20·87	May ,,	May ,,	154	17	137
	119	Sindgi	,,	99,798	30th ,, ,,	16th July ,,	259	25·99	,, ,,	,, ,,	150	34	116
	120	Bágevádi	,,	93,738	22nd ,, ,,	31st Aug. ,,	476	50·78	,, ,,	,, ,,	121	26	95
	121	Bijápur	,,	86,311	16th May ,,	10th July ,,	144	16·68	June ,,	June ,,	100	8	92
	122	Bágalkot	,,	103,593	25th Mar. ,,	1st June ,,	401	38·71	April ,,	May ,,	175	30	145
	123	Bádámi	,,	130,816	5th April ,,	2nd ,, ,,	123	9·40	,, ,,	,, ,,	210	16	194
	124	Hundgund ..	,,	105,866	29th Mar. ,,	31st May ,,	73	6·89	,, ,,	,, ,,	169	17	152
	125	Kaládgi	T. C.	6,592	1st Jan. ,,	30th April ,,	31	47·03	January ,,	April ,,	1	1	..
	126	Kaládgi	C. T.	Unknown.	15th April ,,	15th ,, ,,	1	..	April ,,	,, ,,	1	1	..
Kánara.	127	Honávar	R. C.	51,460	1st Jan. ,,	18th Mar. ,,	19	3·69	January ,,	January ,,	136	4	132
	128	Bhatkal Petta ..	,,	31,407	,, ,,	28th Feb. ,,	12	3·82	,, ,,	,, ,,	Unknown.	2	..
	129	Yellápur	,,	18,113	22nd Sept. ,,	15th Oct. ,,	12	6·62	Sept. ,,	October ,,	106	2	104
	130	Mundgod Petta ..	,,	16,185	1st Jan. ,,	9th Jan. ,,	8	4·94	January ,,	January ,,	Unknown.	1	..
	131	Halyál	,,	29,214	5th April ,,	18th June ,,	17	5·71	May ,,	May ,,	Do.	4	..
	132	Supa Petha ..	,,	24,572	1st Jan. ,,	22nd Feb. ,,	6	2·44	January ,,	Feb. ,,	180	1	179
Ratnágiri.	133	Málvan	R. C.	108,277	4th Jan. ,,	7th Feb. ,,	24	2·22	January ,,	January ,,	76	5	71
	134	Rájápur	,,	168,498	20th June ,,	31st July ,,	17	1·01	July ,,	July ,,	218	2	216
	135	Ratnágiri	,,	104,251	2nd Sept. ,,	30th Sept. ,,	12	1·15	Sept. ,,	Sept. ,,	139	1	138
	136	Chiplún	,,	163,930	20th Jan. ,,	12th Nov. ,,	181	11·04	June ,,	July ,,	237	17	220
	137	Khed	,,	89,647	1st ,, ,,	18th ,, ,,	50	5·58	Nov. ,,	Nov. ,,	Unknown.	7	..
	138	Dápoli	,,	143,137	1st Feb. ,,	3rd ,, ,,	275	12·23	July ,,	July ,,	247	22	225
Kolába.	139	Alibág	R. C.	61,474	7th June ,,	31st Aug. ,,	335	54·43	June ,,	July ,,	208	10	198
	140	Pen	,,	43,962	29th May ,,	12th Oct. ,,	216	49·13	,, ,,	August ,,	150	15	135
	141	Roha	,,	41,997	13th June ,,	30th Sept. ,,	111	26·43	July ,,	July ,,	152	7	145
	142	Mángaon	,,	72,733	24th ,, ,,	16th Aug. ,,	32	4·40	June ,,	August ,,	231	2	229
	143	Mahad	,,	98,734	1st Jan. ,,	30th June ,,	37	3·74	,, ,,	June ,,	250	3	247
	144	Alibág	T. C.	5,473	14th June ,,	30th Aug. ,,	21	38·37	July ,,	July ,,	1	1	..
	145	Mahad	,,	6,631	19th ,, ,,	30th July ,,	35	52·78	June ,,	June ,,	1	1	..
Bombay City..	146	Bombay City		644,405	1st Jan. ,,	31st Dec. ,,	1,165	18·08	March ,,	March ,,	1	1	..
Thána.	147	Dahanu	R. C.	110,423	10th May ,,	18th Dec. ,,	374	33·87	June ,,	August ,,	213	26	187
	148	Máhim	,,	71,974	10th Feb. ,,	28th Sept. ,,	191	26·54	,, ,,	.. ,,	193	14	179
	149	Sháhápur	,,	100,304	9th July ,,	21st Dec. ,,	89	8·87	Dec. ,,	Dec. ,,	282	9	273
	150	Murbád	,,	57,203	13th June ,,	30th Nov. ,,	118	31·72	June ,,	July ,,	173	10	163
	151	Kalyán	,,	59,752	16th Feb. ,,	2nd Aug. ,,	57	9·54	July ,,	.. ,,	235	6	229
	152	Bhiwndi	,,	74,267	3rd ,, ,,	31st July ,,	51	6·87	February ,,	Feb. ,,	201	5	196
	153	Bassein	,,	61,089	7th April ,,	29th Oct. ,,	195	31·92	April ,,	August ,,	92	16	76
	154	Salsette	,,	79,025	1st Jan. ,,	13th ,, ,,	231	29·23	June ,,	June ,,	140	21	119
	155	Panvel	,,	85,878	5th ,, ,,	2nd Sept. ,,	126	14·67	July ,,	July ,,	277	12	265
	156	Karjat	,,	77,150	1st ,, ,,	12th Oct. ,,	244	31·62	January ,,	January ,,	289	17	272
	157	Thána	T. C.	14,299	14th June ,,	31st Aug. ,,	75	52·45	June ,,	June ,,	1	1	..
	158	Kalyán	,,	12,804	16th July ,,	,, ,,	58	45·30	July ,,	July ,,	1	1	..
	159	Panvel	,,	10,836	5th Jan. ,,	13th Jan. ,,	9	8·30	January ,,	January ,,	1	1	..
Surat.	160	Olpád	R. C.	66,256	2nd Feb. ,,	14th Nov. ,,	221	33·35	June ,,	June ,,	139	37	102
	161	Mándvi	,,	48,367	1st Mar. ,,	25th Aug. ,,	204	42·18	,, ,,	,, ,,	169	23	146
	162	Chorási	,,	48,435	10th Jan. ,,	31st July ,,	288	59·46	April ,,	,, ,,	77	32	45
	163	Bárdoli	,,	77,500	9th ,, ,,	4th Nov. ,,	86	11·10	July ,,	July ,,	138	10	128
	164	Jalálpor	,,	70,112	19th ,, ,,	14th ,, ,,	359	51·23	April ,,	June ,,	95	34	61
	165	Chikhli	,,	59,312	9th April ,,	31st Oct. ,,	94	15·85	October ,,	October ,,	..	12	..
	166	Balsar	,,	66,892	9th July ,,	19th Sept. ,,	11	16·44	July ,,	July ,,	95	4	91
	167	Pardi	,,	51,749	20th Aug. ,,	30th Nov. ,,	182	35·17	October ,,	October ,,	81	17	64
	168	Surat	T. C.	107,149	1st Jan. ,,	25th Aug. ,,	281	26·23	January ,,	January ,,	1	1	..
Broach.	169	Broach	R. C.	73,359	3rd Mar. ,,	3rd Aug. ,,	125	17·04	June ,,	July ,,	105	24	81
	170	Vagra	,,	38,779	12th April ,,	28th July ,,	135	34·81	April ,,	May ,,	69	22	47
	171	Ahmod	,,	40,260	1st ,, ,,	29th Aug. ,,	115	28·46	June ,,	June ,,	51	20	31
	172	Jambusar	,,	78,325	10th ,, ,,	3rd ,, ,,	151	19·28	,, ,,	,, ,,	..	25	..
	173	Ankleshvar ..	,,	41,087	27th Jan. ,,	13th Oct. ,,	209	50·85	May ,,	May ,,	57	23	34
	174	Hansot	,,	26,656	23rd April ,,	14th Aug. ,,	9	3·48	April ,,	April ,,	48	2	46
	175	Broach	T. C.	36,932	22nd Feb. ,,	31st July ,,	106	28·70	March ,,	March ,,	1	1	..
	176	Jambusar	,,	14,924	12th April ,,	27th ,, ,,	177	118·60	May ,,	May ,,	1	1	..
Kaira.	177	Mehmadabad ..	R. C.	73,073	2nd April ,,	31st May ,,	60	8·21	April ,,	May ,,	60	14	46
	178	Nadiád	,,	126,932	1st Jan. ,,	30th June ,,	111	8·75	May ,,	June ,,	98	17	81
	179	Borsád	,,	132,314	25th Mar. ,,	12th July ,,	194	14·66	April ,,	April ,,	90	29	61
	180	Anand	,,	149,952	1st Jan. ,,	31st ,, ,,	174	11·60	,, ,,	,, ,,	74	26	48
	181	Thasra	,,	85,601	17th Mar. ,,	14th ,, ,,	529	61·80	March ,,	March ,,	100	60	40
	182	Kapadwanj ..	,,	72,760	17th Jan. ,,	10th ,, ,,	298	40·96	May ,,	June ,,	86	41	45
	183	Mátar	,,	78,673	6th ,, ,,	25th Sept. ,,	67	8·52	,, ,,	May ,,	82	15	67

1	2	3	4	5	6	7	8	9		10	11	
District.	Number of Circles as shown in the Map.	Name of Circle.	Population of Circle.	Date of first Case of Cholera in the Circle during the year.	Date of last Case of Cholera in the Circle during the year.	Total Deaths from the Cholera during the year	Ratio per 10,000	Period of maximum intensity of the diseases.		Number of Villages in each of the Rural Circle.	Number of those	
								From	To		Affected by Cholera.	Not affected by Cholera.
Kaira—*continued.*	184	Kaira .. .. T. C.	12,681	22nd Mar. 1878.	30th April 1878.	24	18·93	March 1878.	April 1878.	1	1	..
	185	Nadiád .. .. ,,	24,551	12th ,, ,,	20th July ,,	71	28·99	May ,,	May ,,	1	1	..
	186	Borsad .. .. ,,	12,214	29th ,, ,,	24th ,, ,,	17	13·92	July ,,	July ,,	1	1	..
	187	Kapadvanj .. ,,	13,982	22nd ,, ,,	19th June ,,	49	35,05	May ,,	May ,,	1	1	..
Panch Mahals	188	Godhra .. .. R. C.	63,373	1st Jan. ,,	7th July ,,	1,062	167·58	April ,,	June ,,	228	117	*111
	189	Dohad .. .. ,,	52,041	1st April ,,	31st ,, ,,	1,163	223·48	,, ,,	,, ,,	131	76	55
	190	Kálol .. .. ,,	40,505	29th Mar. ,,	14th Sept. ,,	429	105·91	May ,,	,, ,,	68	38	30
	191	Jhálod .. .. ,,	36,785	27th ,, ,,	3rd July ,,	929	252·55	,, ,,	,, ,,	100	67	33
	192	Hálol .. .. ,,	25,926	1st Jan. ,,	17th ,, ,,	290	111·86	June ,,	,, ,,	164	53	111
	193	Godhra .. .. T. C.	10,641	5th Feb. ,,	2nd ,, ,,	36	33·83	May ,,	May ,,	1	1	..
	194	Dohad .. .. ,,	11,472	1st Jan. ,,	30th June ,,	221	192·64	April ,,	April ,,	1	1	..
Ahmedabad.	195	Daskroi .. .. R. C.	130,610	5th April ,,	28th June ,,	155	11·87	May ,,	May ,,	145	36	109
	196	Gogha .. .. ,,	24,258	6th Jan. ,,	25th Aug. ,,	119	49·05	June ,,	June ,,	64	25	39
	197	Dhandhuka .. ,,	124,860	15th Mar. ,,	7th Sept. ,,	926	74·16	May ,,	May ,,	160	73	87
	198	Sánand .. .. ,,	73,229	6th April ,,	30th June ,,	122	16·66	June ,,	June ,,	88	19	69
	199	Viramgám .. ,,	108,383	1st Jan. ,,	,, ,, ,,	89	8·21	May ,,	May ,,	158	8	150
	200	Parántij .. .. ,,	106,934	1st April ,,	22nd Oct. ,,	403	37·69	April ,,	June ,,	115	34	81
	201	Dholka .. .. ,,	92,521	24th Mar. ,,	5th July ,,	304	32·86	,, ,,	April ,,	119	36	83
	202	Ahmedabad .. T. C.	116,873	1st ,, ,,	20th Aug. ,,	503	43·04	May ,,	May ,,	1	1	..
	203	Gogha .. .. ,,	9,571	10th May ,,	31st ,, ,,	29	30·30	July ,,	August ,,	1	1	..
	204	Viramgám .. ,,	19,661	1st Mar. ,,	31st July ,,	111	56·46	April ,,	June ,,	1	1	..
	205	Dholka .. .. ,,	20,854	26th ,, ,,	28th June ,,	30	14·39	,, ,,	May ,,	1	1	..
	206	Ahmedabad .. C. T.	1,883	13th May ,,	15th July ,,	2	10·62	May ,,	July ,,	1	1	..
Thar and Párkar.	207	Nagar .. .. R. C.	33,259	24th Mar. ,,	12th April ,,	26	7·82	April ,,	April ,,	7	3	4

No. 3475.

GENERAL DEPARTMENT.

Bombay Castle, 17th December 1879.

Letter from the Sanitary Commissioner, No. 2005-B., dated 7th November 1879—Submitting, with his remarks and explanation, the Annual Report of the Sanitary Department for the calendar year 1878.

RESOLUTION.—The office of Sanitary Commissioner was held during the year 1878 by Mr. Hewlett, Dr. Nolan, and Mr. Lumsdaine, respectively. Mr. Lumsdaine has been in charge since 8th May 1878, and the whole of the report for the year is his work. It is divided into six sections, the first four sections of former reports, which dealt with the subjects stated in the margin, having been eliminated by order of the Government of India. Government propose in the following remarks to deal with the report section by section as they did last year.

Meteorology.
European Army.
Native Army.
Jails.

2. *Section* I.—*General Population and Vital Statistics.*—The births during the year under report were 243,253, or a ratio of 15·04 per 1,000 of population, being 68,408 fewer than in 1877, and 80,967 below the mean annual number for the six years 1873—1878. This diminution is striking, and Government assume it to be in great measure due to the after-effects of the famine. Mr. Lumsdaine has made no comment upon it, though he might usefully have done so. In only three registration districts out of 24, viz., in Bombay City, Kolába and Thar and Párkar, were the birth rates for 1878 above those for the year preceding. The highest rate recorded in any district was at Surat, 24·65 per 1,000, the lowest was at Kaládgi, 3·42. Throughout the whole of the Deccan, the Southern Marátha Country and Gujarát, a decrease, often a considerable decrease, is noticeable. From the tables contained in Mr. Lumsdaine's 6th and 7th paragraphs it appears that in a large number of cases birth registration is better carried out in districts than in municipal towns and cantonments: *e. g.*, in Násik District 22·46 per 1,000 are recorded, in Násik City only 17·00 and in Deoláli Cantonment only 3·36 per 1,000; in Ahmednagar District 15·64, and in Ahmednagar City only 8·25 per 1,000; in the Panch Maháls 18·54 and in Godhra 6·40 per 1,000. His Excellency in Council thinks that in municipal towns at all events it should not be found a task of great difficulty to improve the registration of vital statistics, and the same remark applies to cantonments. The importance of the subject has been so frequently insisted upon by Government that they cannot but believe that more attention is being paid to it than was formerly the case; but they must request the Commissioners of the different Divisions, while on tour, to make it in every district and municipality which they visit a matter of particular enquiry and comment. It is hoped that the Sanitary Commissioner will not again have to remark on the "utter worthlessness" of birth registration in the principal towns. The deaths registered in 1878 were 532,951, being 94,757, or a ratio of about 6 per 1,000, less than in 1877. There was a decreased ratio throughout the whole of the Deccan and Southern Marátha Country, with the exceptions of Khándesh and Násik; in Kaládgi, Dhárwár and Belgaum the decrease was very remarkable, the ratio of deaths in Kaládgi especially being more than 70 per 1,000 below that of the preceding year. Throughout the whole of Gujarát, on the other hand, and in every district in Sind, with one exception, there was an increase. The returns from the Panch Maháls show a death ratio for 1878 of 75·66 per 1,000 as against 14·77 in 1877; in Ahmedabad the ratios were 41·35 and 20·50, respectively; in Broach 43·41 and 22·12; and in Kaira 39·46 and 20·19. The contrasts in Sind are not so remarkable, but registration in that province is particularly defective. The unhealthiest season of the year was, in the Deccan Districts, from June to September; in Dhárwár, Kaládgi and Kánara, the month of January; in all the Gujarát Districts, excepting the Panch Maháls, the month of

November, and in the Panch Mahâls, the month of August. The causes of death will be adverted to in the next paragraph. From paragraph 11 of the Sanitary Commissioner's report it seems that in Gujarát and the Deccan the end of the cold and the commencement of the hot season was the healthiest time of year, while in Bombay City and in all the districts between the ghâts and the sea the lowest recorded mortality occurred in May or June. From the table in paragraph 12 of the report, giving the classification of deaths according to ages, it seems that the percentage on total deaths is highest among children between the ages of 1 and 6 years, it then falls up to 20 years, but rises rapidly between 20 and 30, after which it neither rises nor falls to any remarkable extent until the age of 60 and upwards is reached, when it rises to 13·53 per cent.—a ratio which is, however, nearly 5 per cent. less than the death rate between 1 and 6 years. There is a general accordance between the rates from the different registration districts. In Poona, Sholápur, Ratnágiri, Kurrachee and Thar and Párkar the most fatal age is 60 and upwards; while in Bombay City the first year of life is by far the most fatal, the ratio being 24·05 per cent. of the total deaths, as against 17·46 per cent. for the following five years, which show the next highest rate of mortality.

3. From the returns (paragraph 13 and Form No. V.) of death by caste or class, it appears that among Hindus the recorded deaths were 462,318 or 35·39 per 1,000 of their number; among Mahomedans there were 61,896 or 21·78 per 1,000; among Christians (native converts) 2,732 or 25·76 per 1,000; and among "other classes" 5,979 or 35·28 per 1,000. In noticing the discrepancies in the returns of deaths among "other classes" as compared with their numbers according to the census of 1872, Mr. Lumsdaine remarks that probably low caste Hindus have been included. He is no doubt right, but care should be taken to prevent this in future. The census of 1872 should be the basis of classification, and as Mahárs, Mángs, &c., appear to have been included among Hindus in that census they should be so included in the sanitary returns.

Of specific causes of death during the year under review the principal was fever, to which no less than 357,376 deaths are attributed, being 20,511 more than in 1877. The disease was particularly fatal in Násik, Dhárwár, Broach, Kaira and the Panch Mahâls. In the last-named district more than 38 per 1,000 of the total population died from it. In the towns of Sholápur, Násik, Ahmedabad, Dohad, Hyderabad in Sind, and in the Ahmedabad Cantonment the death rate from fever was very high. There were 46,743 deaths from cholera in 1878, but they will be referred to more particularly in the next paragraph. Deaths from bowel complaints were 41,165 in number, being 19,092 less than in the preceding year. From small-pox there were 4,475 deaths, a marked diminution as compared with the number, 27,369, in 1877. The deaths from small-pox in Kaira and Ahmedabad account for nearly half the total.

4. *Section* II.—*History of Chief Diseases.*—The epidemic of cholera, which broke out in 1875 and continued throughout 1876 and 1877, though it had abated to some extent in 1878, still caused 46,743 deaths. Every district in the Presidency proper was affected by it. The highest recorded number of deaths in any one district, viz., 6,077, was in Khándesh, and there were 5,757 and 5,386 in Belgaum and Sátára respectively, more than 3,000 both in Sholápur and Poona, but less than 2,000 in Dhárwár. In 1877 the severity of the epidemic was conspicuously greatest in the Southern Marátha Country, but in 1878 the cholera wave seems to have travelled or spread itself to the north. By far the highest death rate from cholera in 1878 is in the Panch Mahâls, where it reaches a ratio of 17·15 per 1,000, the total number of deaths in that district being 4,130, nearly 1,000 more than the total mortality from cholera during the twelve years from 1866 to 1877. In Khándesh the ratio is 5·91 per 1,000, though it was only 1·64 the year before; in Broach it is 2·93 against 0·86 in 1877, and in Surat 2·84 against 1·61. It is true that in Belgaum the ratio is still very high, viz., 6·13, but it was 8·89 in 1877, while in Kaládgi and Dhárwár where the ratio was 8·73 and 8·89 in 1877, it was only 2·73 and 1·81 in 1878. In Bombay

City the deaths were 1,165, of which 224 occurred in March, the ratio per 1,000 being 1·81. In most districts the principal virulence of the cholera was felt in May, June or July. But in Khándesh it was at its height in August, in which month there were more deaths than in all the remaining months of the year combined. The lateness of the monsoon last year accounts no doubt to some extent for the fact that the epidemic showed so little abatement in the month of July. It continued in Bombay City, Thána, and Khándesh up to the end of the year. Mr. Lumsdaine is apparently mistaken in saying (in his 18th paragraph) that for the first 9 months of the year the mortality from cholera was much higher than it was for the corresponding period of 1877. The deaths during the first 9 months of 1877 appear to have been 54,532, while they numbered only 45,967 for the corresponding period of 1878.

The Sanitary Commissioner gives the mean annual number of deaths from small-pox for the 13 years from 1866 to 1878 as 10,893. The deaths during the year under report were only 4,475, or less than half the average number. February, March and April were the months of its greatest virulence, while children over 1 year and under 12 years of age were the chief sufferers. As has been mentioned in the last paragraph, nearly half the mortality occurred in Kaira and Ahmedabad, in each of which districts there were more than 1,000 deaths. Last year also the disease was at its height in March.

There were 357,376 deaths from fever during the year under review, or 20,511 more than in 1877, which itself showed the large increase under this head of 116,032 over the returns for 1876. The highest rate per 1,000 was in the Panch Maháls, 38·13, following which came Broach, Násik and Kaira. Last year, Kaládgi showed a death rate from fever of 50·55 per 1,000, and Dhárwár one of 40·40, which exceeds the mortality recorded in any district in 1878. The total death rate per 1,000 from fever was, however, 22·08 in 1878, while it was 20·79 in 1877. To the extraordinarily heavy rain-fall in Gujarát last year is in all probability largely due the unusual prevalence of fever in that province. Mr. Lumsdaine (paragraph 63) says that the "greatest number of deaths were "returned in January, and from August to December." Looking at the monthly statement in the same paragraph it seems that though there were many deaths in August and September, yet their number was exceeded in October and November, the last of which months shows a total of 37,184 deaths, being a ratio per 1,000 of 2·30 of the total population.

The number of deaths from bowel complaints was 41,165, which was 19,092 less than in 1877, but more than the number recorded in any other year since 1869. The rate per 1,000 was highest in the Panch Maháls, viz., 8·24, and, putting the Sind Collectorates on one side, lowest in Thána, viz., 0·41. The deaths were most numerous in August and September, as was the case also in 1877 and 1876, while in 1875 and 1874 the highest numbers recorded were in July and August.

The total deaths from accident or violence were 7,550, almost the same as in the preceding year. The mortality from snake-bite was, as usual, highest in Hyderabad, Thána and Ratnágiri, the total number of deaths throughout the Presidency from this cause being 983 or nearly 200 less than in the previous year. Government would be glad to have the deaths under the head of "Injuries" more minutely classified. The Sanitary Commissioner gives only the three headings "suicide, wounding or accident, snake-bite." Last year drowning accounted for 2,588 deaths, a serious and important item, which it is requested may be shown separately in future.

5. *Section* III.—*General History of Vaccination.*—There were several changes during the year in the personnel of the supervising staff, which are detailed in paragraph 73 of the Sanitary Commissioner's report. The number of the employés of the Department was increased by three peons and one vaccinator, and further additions are said still to be required when funds are available for making them. The returns for vaccination do not run for the calendar year, and the figures given in the present report are those for the financial

year 1878-79. They include for the first time the returns for British troops. There were 561,969 primary vaccinations and 69,177 re-vaccinations during the year, or a total of 631,146 operations, being a decrease of 119,802 as compared with the year preceding. The causes of this are said to be the general unhealthiness of the season, distress in Gujarát, and the effects of the famine in the Deccan. But Government cannot think that the reasons assigned are satisfactory. The distress in Gujarát was not sufficient to account for the decrease in the number of operations in that province, which amounted to more than 70,000. There was, however, throughout the Presidency, a slight increase in the percentage of successful primary operations. But the total number of such operations is less than it has been during any year since 1873, and the percentage of success is below that for 1875, 1876 and 1877. Taking primary operations and re-vaccinations together, the percentage of success is below that for the four preceding years. In successful primary operations the highest place is occupied this year by the Northern Deccan Registration Circle, with a percentage of 96·90; the Eastern Gujarát Circle follows with a percentage of 96·25, while the Konkan Circle shows a percentage of 96·13. Among individual districts the Native State of Jawhár shows the high percentage of 99·59. Of persons primarily vaccinated 3,347 were Christians, 436,951 Hindus, 88,780 Musalmáns, 1,542 Pársis and 31,349 other castes, while 292,463 were males and 269,506 females. In re-vaccinations the males operated on were 40,083 and the females 29,094. The proportion of males to females is somewhat less than it was last year.

Mr. Lumsdaine mentions (paragraph 104) that of Local Fund vaccinators 20 have more than one rural circle, so that at least 20 more are required. He refers to page 198 (paragraph 51) of last year's report, from which it appears that there were then five rural circles in Khándesh, three in Dhárwár, one in Kolába, one in Broach, four in Kurrachee, one in Hyderabad, one in Thar and Párkar and four in Shikárpur, without any vaccinator. If this is still the case the Collectors and Presidents, Local Funds Committees, of the districts named, should endeavour to supply the deficiency. The lymph obtained from England this year was not very successful in its results. Animal vaccination was carried on at Bombay and Poona only, and on the whole with success. Vaccination has been made compulsory by law in the town of Kurrachee. The average cost of each successful case throughout the Presidency was annas 6 and pies 8 or 1 anna more than last year. The attention of Government in the Political Department should be requested to Mr. Lumsdaine's 132nd paragraph, in which he refers to the importance of introducing vaccination into the territories of His Highness the Kháu of Khelát. Copy of the Sanitary Commissioner's paragraph No. 175, in which he alludes to the difficulties under which the Compulsory Vaccination Act is worked in Bombay City, should be forwarded to the Municipal Commissioner, Bombay. The superior officers of the department seem to have moved actively about their charges, and the conduct of their subordinates was on the whole good. The great diminution in the number of deaths from small-pox, as compared with last year, affords some proof of the efficiency of their work, but Government trust that the returns of next year will show an increase in the number of operations.

6. *Section* IV.—*Sanitary Works, Military.*—Of the total outlay of Rs. 7,01,148 under this head in 1878, about two-thirds or Rs. 4,84,644 were expended at Ahmedabad, principally on barracks for Royal Artillery and British Infantry, and about half a lakh each at Colába and Deesa. Rs. 22,422 were spent on a new hospital at Sirur, and Rs. 13,417 on improving the water supply at Asirgarh, while at Baroda Rs. 12,575 were expended, of which Rs. 9,905 were applied to improving the ventilation of the barracks occupied by European Troops. The remaining expenditure calls for no remark by Government in this Department, but will engage their attention hereafter in the Military Department.

7. *Section* V.—*Sanitary Works, Civil.*—This section contains a list of sanitary works carried out during the year under review in the various districts and municipalities, with the cost of each. Important improvements appear to

have been effected in Khándesh, Násik, Kánara, Thána, Kaira and Ahmedabad. Little was done in the Panch Mahál, but the want of funds in that district accounts for this, and no works whatever were carried out in Broach or Kolába, where the same excuse does not exist. In column 12 of the statement in Section V. the Sanitary Commissioner gives a list of works urgently needed in each district. His Excellency in Council thinks that, in the case of the more important works at all events, Mr. Lumsdaine might well have supplied Government with some reasons and suggestions in support of his recommendations. The raising of a loan for the purpose of improving the water supply in Sholápur City has recently been sanctioned by Government.

8. *Section* VI.—*General Remarks.*—This section consists of extracts from the Annual Cantonment Reports of medical officers, together with some remarks by the Sanitary Commissioner on the unsanitary condition of Government House, Ganesh Khind. From the former it appears that the healthiest stations for British Troops during the year under review have been Ahmednagar, Sátára, Ahmedabad, Hyderabad and Aden; while the Native Troops have fared best at Ahmednagar, Málegáon, Asirgarh, Deesa, Mehidpur, Bombay, Thána and Hyderabad. At Jacobabad the 1st and 2nd Regiments of Sind Horse are said to have enjoyed good health, but the other troops quartered there would not appear to have been equally fortunate as no similar statement is made concerning them. The British Troops at Mount Abu suffered much from malarial fever after the monsoon. At Indore both British and Native Troops were attacked by cholera, and on the 20th August the former were removed from the station. Cholera has also appeared at Neemuch and Nusseerabad among the Europeans, but is not said to have extended to the Native Troops.

Mr. Lumsdaine's memorandum on Government House, Ganesh Khind, is valuable and interesting.

9. Finally, Government would observe that the way in which the facts and figures in this report have been compiled is creditable to Mr. Lumsdaine's office establishment, but they would have been glad to receive more of suggestion and comment on the part of the Sanitary Commissioner himself. Government desire that when a mass of facts and figures is submitted to them, the deductions to be made therefrom should be stated so far as the judgment of the reporting officer goes. Government note the Sanitary Commissioner's promise to discuss "several subjects of interest" in his report for the current year, and they hope it will be redeemed in a complete and searching manner.

JOHN NUGENT,
Acting Secretary to Government.

To

The Sanitary Commissioner,
The Surgeon General, Indian Medical Department,
The Military Department of the Secretariat,
The Judicial Department of the Secretariat,
The Revenue Department of the Secretariat,
The Political Department of the Secretariat,
The Public Works Department of the Secretariat,
The Commissioner in Sind,
The Commissioner, N. D.,
The Commissioner, C. D.,
The Commissioner, S. D.,
All Collectors, including the Collectors and Superintendents in Sind, and the Extra First Assistant Collector in charge Panch Mahál,
The Accountant General,
The Municipal Commissioner for the City of Bombay.

SIXTEENTH ANNUAL REPORT

OF THE

Sanitary Commissioner for the Government of Bombay,

1879,

LIBRARY OF THE BOMBAY BRANCH OF THE ASIATIC SOCIETY

WITH

APPENDICES.

Bombay:
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1880.

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ANNUAL SANITARY REPORT FOR 1879.

SECTION I.

GENERAL POPULATION AND VITAL STATISTICS.

Births.

Number of Registered Births.

1. Amongst the civil population the number of births registered in 1879 was 287,870, and of this number 151,460 were male births, and 136,410 were female. In 1878 the registered total was 243,253, and by sexes the numbers were respectively 128,848 and 114,405. For the 5 years from 1874 to 1878 inclusive the mean registered total is 314,807, so although the total for 1879 is higher by 44,617 than that for 1878, it is less than the quinquennial mean by 26,937.

Birth-rates.

2. The general birth-rate for the year was 17·74 per 1,000 of population. For male births it was 17·86, and for female 17·60. The proportion of male to female children born was 110·91 to 100 : last year it was 112·80. In every 100 births there were 52·61 male, and 47·39 female, and for every 100 male births there were 90·06 female : last year there were only 88·79. The ratio of boys born alive has again exceeded that of girls. The following table shows, for the 6 years from 1874 to 1879 inclusive, the registered number of births, their ratio to population, and the proportion of males to females. The results for 1879 are by themselves to contrast with the corresponding means of the previous 5 years :—

Years.	Number of Births Recorded.			Rate per 1,000 of Population.			In every 100 born there were		For every 100 Male Births the Female were
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	
1874..	174,966	157,842	332,808	20·69	20·44	20·57	53·77	46·23	90·21
1875..	178,892	161,937	340,829	21·15	20·97	21·06	52·49	47·51	90·52
1876..	181,872	163,612	345,484	21·50	21·18	21·35	52·64	47·36	89·96
1877..	164,262	147,399	311,661	19·40	19·06	19·26	52·75	47·25	89·73
1878..	128,848	114,405	243,253	15·25	14·81	15·04	52 97	47·03	88·79
Mean	165,768	149,039	314,807	19·60	19·29	19·46	52·92	47·08	89·44
1879..	151,460	136,410	287,870	17·86	17·60	17·74	52·61	47·39	90·06

Birth-rates in Districts.

3. In the next table there are given the number of births registered in each District, and their ratios per 1,000 of population; and numbers and ratios are contrasted with those for 1878. The highest rate (27·92) is for the Násik District, and the lowest (5·00) for Shikárpur. It will be seen, that in the Surat, Ahmedabad, Broach, and Panch Maháls Districts of Gujarát, in the Sholápur District of the Upper Deccan, in the Ratnágiri District of the Konkan, and in the Thar and Párkar, Hyderabad, and Shikárpur Districts of Sind, the recorded rates for the year are below those for 1878. The most notable decrease is from 19·02 to 8·02 for Thar and Párkar. In all the other Districts the ratios are higher : at Belgaum they are 20 against 12; at Dhárwár 17 against 10; and at Kaládgi 8 against 3 :—

No.	Registration Districts.	Number of Births Registered.		Rate per 1,000 of Population.	
		1879.	1878.	1879.	1878.
1	Násik	20,501	15,431	27·92	22·46
2	Sátára	27,093	18,725	25·54	17·64
3	Khandesh	25,504	20,374	24·79	19·81
4	Ahmednagar	18,968	12,113	24·51	15·64
5	Thána...	20,442	16,464	24·14	19·43
6	Kánara	9,582	8,057	24·05	20·22
7	Bombay City...	14,341	13,896	22·25	21·56
8	Kaira	17,287	15,728	22·08	20·09
9	Surat*...	13,063	14,965	21·51	24·65
10	Kolába	7,351	6,043	20·98	17·24
11	Belgaum	19,170	11,773	20·42	12·54
12	Ahmedabad*	15,321	16,225	18·46	19·55
13	Dhárwár	16,927	9,966	17·13	10·08
14	Poona...	15,139	11,740	16·70	12·94
15	Ratnágiri*	13,609	13,804	13·36	13·55
16	Broach*	4,177	6,271	11·92	17·90
17	Panch Mahás*	2,468	4,464	10·25	18·54
18	Sholápur*	6,718	6,769	9·35	9·42
19	Kaládgi	6,798	2,795	8·33	3·42
20	Upper Sind Frontier...	738	671	8·20	7·48
21	Thar and Párkar*	1,451	3,439	8·02	19·02
22	Kurrachee	3,390	3,332	8·00	7·87
23	Hyderabad*	3,950	5,078	5·47	7·03
24	Shikárpur*	3,882	5,130	5·00	6·61
	Total for the year ...	287,870	243,253	17·74	15·04

* Birth-rate for 1879 lower than for 1878 in 9 Districts.

Birth-rates in principal Towns.

4. The subjoined list of 24 principal Towns gives their enumerated population by the census of 1872, and we may assume, that, since that enumeration, the numbers have increased very considerably: there are also shown the birth *and death* ratios per 1,000 of population:—

Number	Names of Towns.	Population.	1879.		1878.	
			Birth-rate per 1,000.	Death-rate per 1,000.	Birth-rate per 1,000.	Death-rate per 1,000.
1	Ahmedabad†	116,873	41·31	70·61	40·08	72·31
2	Hyderabad*	35,272	26·45	40·71	32·12	52·22
3	Jacobabad*	5,205	26·13	46·11	32·66	52·76
4	Kárwár (a)†	13,263	25·41	22·84	20·13	31·74
5	Sátára (a)†	24,484	24·10	20·00	20·99	48·93
6	Bombay City†	644,405	22·25	34·60	21·56	41·41
7	Násik†	22,436	20·46	35·00	17·00	78·40
8	Thána†	14,299	20·28	22·17	9·30	28·12
9	Belgaum†	26,947	20·26	31·80	14·66	51·66
10	Shikárpur*	38,107	19·21	23·46	20·36	30·28
11	Kaira‡ †	12,681	15·77	29·41	5·05	8·51
12	Ahmednagar†	32,841	15·13	31·59	8·25	64·67
13	Umarkot*	3,999	14·76	18·50	20·75	28·76
14	Dhárwár†	27,136	13·26	23·80	6·60	28·75
15	Surat†	107,149	12·63	21·65	11·92	24·58
16	Kurrachee‡ †	53,526	12·59	30·43	10·86	21·82
17	Broach*	36,932	11·05	28·18	16·80	38·44
18	Sholápur* ‡	53,403	9·87	126·76	11·10	83·47
19	Alibág*	5,473	9·87	31·79	12·24	42·02
20	Vengurla*	14,996	8·07	17·60	8·60	17·93
21	Dhulia*	12,489	7·29	22·66	9·69	27·62
22	Kaládgi‡ †	6,592	5·31	43·46	3·50	41·72
23	Godhra*	10,641	5·17	28·47	6·40	90·26
24	Poona City*	90,436	4·98	17·06	6·07	39·53

* Birth-rate for 1879 lower than for 1878 in 11 Towns.
† Do. do. higher do. in 13 ,,
‡ Death-rate do. do. do. in 4 ,,
(a) Birth-rate exceeds Death-rate do. in 2 ,,

5. Now in last year's Report I spoke of the utter worthlessness of this return and I wish something could be said in its favour now; but as it was then, so it is now, grossly incorrect, grossly inconsistent. In 2 instances only does the birth-rate exceed the death-rate, so in 22 the extinction by depopulation is, by their own returns, a mere matter of calculation. It is disappointing to find, that in regard to its Birth Registration the City of Bombay is so behind hand.

6. In the Cantonment of Ahmedabad the birth and death-rates were respectively 54·70 and 48·86, and for Málegaon they were 33·96 and 28·30. In every other cantonment the death-rate was higher. At Devláli it was 24·61 against 11·19 as the birth-rate—for Ahmednagar they were respectively 16·32 and 7·28—for Belgaum 45·97 and 6·94—and for Poona and Kirkee 16·10 and 6·01. These figures need no comment.

Births by months.

7. The following Table give the Births by months for each year since 1874, and it will be seen that in 1879 as in 1878 the greatest number occurred in October, and the least in February. The quinquennial mean however shows a July maximum:—

Years.	January	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1874	24,229	21,405	24,631	24,712	26,643	29,758	30,888	31,892	30,353	31,748	29,349	[illegible]	332,808
1875	26,202	24,469	29,884	29,852	29,914	29,052	31,262	29,406	28,438	27,455	28,583	[illegible]	340,829
1876	24,304	23,914	28,007	27,482	28,645	30,106	33,325	31,338	31,220	30,392	29,729	27,022	346,484
1877	24,386	22,446	27,622	27,756	30,499	28,826	29,490	25,895	24,924	24,480	23,311	22,026	311,661
1878	19,635	17,486	18,302	18,084	18,935	17,539	20,938	22,412	22,375	23,179	22,774	21,394	243,253
Mean	23,791	21,944	25,689	25,577	26,927	27,056	29,181	28,189	27,462	27,451	26,749	24,791	314,807
1879	19,259	16,316	18,332	19,525	20,755	22,248	25,660	27,515	29,968	31,301	29,361	27,730	287,870

Deaths.

Number of Deaths.

8. Including the lapsed Peint State, in the Násik Collectorate, the civil population, as enumerated at the Census of 1872, numbered 16,228,774, and amongst that population, the total of deaths registered in 1879 was 387,542.

Death-rates.

9. The computed death-rate per 1,000 of population is 23·88, and for 1878 it was 32·94. For the 5 years preceding the average was 26·77, so for 1879 it is less by 9·06 than for 1878, and lower than the quinquennial mean by 2·89.

Male and Female deaths.

10. There were 207,091 deaths of males, and 180,451 of females. The ratio of males dying to males living was 24·41, and of females dying to females living it was 23·29. In 1878 these ratios were respectively 34·05 and 31·72. For every 100 females who died, there died 114·76 males. These proportions vary in the several Districts, and notably so in the following:—

Poona	119·00	Males to 100	Females.
Panch Mahâls	122·70	„	„ „
Kaira	123·41	„	„ „
Thar and Parkár	123·74	„	„ „
Hyderabad...	153·51	„	„ „
Shikárpur	153·87	„	„ „
Upper Sind Frontier	155·92	„	„ „
Kurrachee	159·73	„	„ „

Mean death-rates for periods.

11. For the 6 years ending with 1871 the mean annual number of deaths registered was 219,751, and for the next 6 years it was 382,878: the mean ratio per 1,000 for the first period was 16·4, and for the second it was 23·7: without a doubt the higher is the more correct.

12. The following Table shows, for each Division of the Presidency, the enumerated population, the deaths for the year, and their ratios per 1,000 of

population the highest ratio is for Gujarát, and the lowest for Sind, but in all the Divisions it is considerably lower than in 1878:—

Division.	Population by Census of 1872.			Number of Deaths.			Ratio per 1,000 of Population.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
Northern Deccan ..	2,138,826	2,023,409	4,162,235	45,547	39,639	85,186	21·30	19·59	20·47
Southern do. ..	1,941,920	1,861,906	3,803,826	47,682	43,973	91,655	24·55	23·62	24·09
Konkan	1,714,472	1,545,304	3,259,776	45,344	41,709	87,053	25·35	24·04	24·95
Gujarát	1,470,962	1,339,560	2,810,522	51,133	44,087	95,220	34·76	32·91	33·87
Sind	1,216,208	976,207	2,192,415	16,885	11,043	27,928	13·88	11·31	12·73
Total ..	8,482,388	7,746,386	16,228,774	207,091	180,451	387,542	24·41	23·29	23·88

Deaths by Districts.

13. The deaths by Districts, and their ratios per 1,000 of population, are here shown in sequence, and it will be seen, that they range from 38·73 in the Broach District to 9·61 on the Upper Sind Frontier. In 1878 the minimum ratio (8·06) was on that Frontier, and the maximum (75·65) was in the Panch Maháls. The greatest number of deaths (31,243) occurred in the Ahmedabad District, and the least number (865) on the Upper Sind Frontier:—

Districts.	Number of Deaths.			Ratio per 1,000 of Population.		
	Males.	Females.	Total.	Males.	Females.	Total.
Broach	7,004	6,566	13,570	38·37	39·12	38·73
Ahmedabad	16,824	14,419	31,243	38·34	36·88	37·65
Kaira	16,137	13,076	29,213	38·50	35·96	37·32
Bombay City... ...	11,855	10,439	22,294	29·66	42·66	34·60
Kánara	7,353	6,282	13,635	35·62	32·72	34·22
Sholápur	12,270	10,919	23,189	33·20	31·31	32·31
Surat	9,249	8,462	17,711	30·40	27·94	29·17
Belgaum	14,081	12,593	26,674	29·40	27·37	28·40
Ratnágiri	13,866	13,870	27,736	28·23	26·27	27·22
Dhárwár	12,741	11,817	24,558	25·17	24·52	24·85
Kaládgi	9,789	9,401	19,190	23·44	23·60	23·52
Ahmednagar... ...	8,716	7,848	16,564	22·04	20·73	21·38
Thána	9,335	8,162	17,497	21·25	19·99	20·66
Násik	7,769	6,679	14,448	20·61	19·78	20·19
Sátára	11,071	10,162	21,233	20·52	19·46	20·01
Kolába	3,435	2,956	6,391	19·29	17·15	18·24
Khándesh	9,949	8,443	18,392	18·75	16·95	17·88
Kurrachee	4,506	2,821	7,327	18·76	15·38	17·30
Panch Maháls ...	1,919	1,564	3,483	15·19	13·67	14·47
Poona	6,843	5,750	12,593	14·68	12·92	13·82
Hyderabad ...	5,956	3,880	9,836	14·97	11·97	13·62
Thar and Párkar ...	1,084	876	1,960	10·50	11·30	10·84
Shikárpur	4,812	3,128	7,940	11·34	8·89	10·23
Upper Sind Frontier ...	527	338	865	10·44	8·55	9·61
Total ...	207,091	180,451	387,542	24·41	23·29	23·88

Except for the Broach, and Thar and Parkár Districts, and the City of Bombay the death-rate for males everywhere exceeds that for females. It was the same in 1878 in the City of Bombay, and at Thar and Parkár.

Death-rates by months.

14. In the next Table the District ratios of mortality, per 1,000 of population, are given by months, and they are contrasted with those for 1878:—

Districts.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Khándesh	1878	1·35	1·13	1·50	1·94	2·36	2·62	4·11	8·47	5·12	2 97	2·10	1·77	35·44
	1879	1·46	1·10	1·13	1·20	1·78	1·07	1·84	1·81	1·63	1·69	1·83	1·75	17·88
Násik	1878	3·28	2·94	2·83	2·26	2·18	2·11	2·83	4·40	5·84	4·22	3·20	3·09	39·17
	1879	2·27	1·49	1·37	1·40	1·62	1·34	1·97	2·00	1·60	1·58	1·70	1·84	20·19
Ahmednagar	1878	2·69	2·07	2·10	1·94	2·22	2·52	4·44	4·81	4·41	3·98	2·69	2·29	36·12
	1879	1·73	1·34	1·23	1·46	1·36	1·54	2·18	2·82	2·17	1·73	1·78	2·04	21·38
Poona	1878	2·62	1·73	1·61	2·07	2·66	3·90	4·11	4·23	3·48	2·63	1·86	1·72	32·63
	1879	1·41	1·00	0·95	0·96	0·94	0·88	1·14	1·35	1·23	1·18	1·24	1·55	13·82
Sholápur	1878	2·11	1·30	1·54	1·76	4·10	3·01	4·15	3·30	3·75	3·86	3·93	3·81	37·11
	1879	2·83	1·67	1·40	1 59	1·68	2·23	4·35	4·33	3·58	3·59	2·76	2·30	32.31
Sátára	1878	2·46	1·59	1·72	1·85	3·39	6·40	5·29	4·19	3·92	3·31	2·34	2·06	38·58
	1879	1·76	1·33	1·40	1·57	1·60	1·57	1.65	2·09	1·91	1·70	1·64	1·79	20·00
Belgaum	1878	4·47	3·01	3·15	6·41	6·46	4·45	3·62	3·78	3·33	2·89	2·71	2·80	47·02
	1879	2·65	2·40	2·35	2·32	2·48	2·20	2·28	2·52	2·38	2·05	2·33	2·25	28·41
Dhárwár	1878	5·56	3·46	3·03	3·46	3·88	3·60	3·38	4·02	3·10	2·58	3·30	3·54	42 90
	1879	3·11	2·42	2·01	1·71	2·01	2·00	1·94	2·00	1·85	1·69	2·02	2·10	24·85
Kaládgi	1878	3·73	1·81	1·62	2·25	3·76	2·37	2·45	2·11	2·23	2·52	2·62	2·19	29·67
	1879	1·99	1·42	1·55	1·76	1·54	1·91	2·32	2·88	2·74	2·30	1·59	1·51	23·52
Kánara	1878	5·17	3·97	3·57	3·29	3·12	2·85	3·51	4·22	3·82	3·22	3·30	3·24	43·27
	1879	3·68	3·39	3·38	2·62	2·28	2·40	2·58	2 73	2·77	2·50	2·60	3·30	34·22
Ratnágiri	1878	1·56	1·37	1·51	1·50	1·33	1·19	1·70	1·73	1·60	1·46	1·57	1·79	18·31
	1879	2·04	2·22	2·28	2·17	2·16	2·37	3·31	3·18	2·37	1·70	1·68	1·74	27·22
Kolába	1878	1·47	1·13	1·16	1·33	1·09	2·05	2·37	2·29	1·98	1·13	1·37	1·65	19·02
	1879	1·86	1·24	1·45	1·09	1·11	1·16	1·52	1·93	1·72	1·65	1·67	1·84	18·24
Bombay City	1878	3·61	3·34	3·73	3·36	3·61	2·97	3·31	3·68	3·62	3·73	3·35	3·11	41·41
	1879	3·16	2·86	3·00	2·79	3·12	2·33	2·84	3·13	2·83	2·79	2·84	3·07	34·60
Thána	1878	3·06	2·32	1·77	1·75	1·73	1·80	2·53	2·19	2·02	1·85	1·83	1·90	24·74
	1879	1·77	1·69	1·63	1·39	1·37	1·51	1·51	0·83	1·79	1·75	2·30	2·07	20·66
Surat	1878	1·84	1·56	1·65	1·95	1·86	2·07	2·14	2·33	2·33	2·57	2·99	2·75	26·04
	1879	2·09	1·77	1·79	1·79	1·96	1·76	8·02	2·51	2·80	3·29	4·01	3·25	29·17
Broach	1878	1·45	1·69	2·38	2·76	2·97	2·97	2·80	3·49	4·28	5,82	7·59	5·21	43·43
	1879	3·23	2·31	2·15	1·55	1·38	1·18	1·42	2·30	3·46	5·98	8·55	5·21	38·71
Kaira	1878	1·80	1·77	3·77	3·84	2·77	2·48	2·64	3·61	3·97	4·72	5·09	2·99	39·46
	1879	2·05	1·82	1·70	1·50	1·37	1·64	2·15	2·81	4·39	7·17	6·70	3·52	37·32
Panch Mahális	1878	1·18	1·12	2·03	5·81	9·19	12·23	10·77	12·65	9·60	4·76	4·10	2·22	75·66
	1879	2·04	1·74	1·32	0·68	0·69	0·60	0 89	0·85	1·09	1·44	1·83	1·32	14·47
Ahmedabad	1878	2·04	2·11	2·98	3·40	3·59	2·78	2·39	3·08	3·56	5·48	6·03	4·02	41·35
	1879	3·45	2·46	2·24	2·02	2·38	1·71	2·08	2·48	3·83	5·03	5·83	4·14	37·65
Kurrachee	1878	1·98	1·81	1·65	1·18	0·98	0·79	0·87	1·01	1·88	1·51	1·96	2·06	17·18
	1879	1·77	1·35	1·10	1·20	1·84	2·58	1·90	1·09	0·92	0·96	1·20	1·57	17·30
Hyderabad	1878	1·16	1·23	0·97	0·78	0·68	0·63	0·64	0·59	1·04	1·70	2·08	2·03	13 52
	1879	1·77	1·45	1·34	0·88	1·37	1·87	0·65	0,55	0·60	0·77	1·11	1·26	13·62
Thar and Párkar	1878	2·30	2·19	1·81	1·74	1·28	0·96	0·96	2·02	2·31	1·96	1·56	1·66	20·75
	1879	1·01	1·51	0·96	0·89	1·00	1·08	0·50	0·51	0·72	0·74	0·95	0·97	10·84
Shikárpur	1878	0·77	0·76	0·61	0·64	0·67	0·63	0·76	0·51	0·81	1·10	1·39	1·07	9·74
	1879	0·89	0·80	0·60	0·57	1·00	1·57	0·67	0·51	0·63	1·07	0·97	0·95	10·23
Upper Sind Frontier	1878	0·71	0·59	0·55	0·58	0·51	0·51	0·61	0·51	0·85	0·85	1·01	0·79	8·06
	1879	1·91	0·82	1·00	0·71	0·54	1·57	0·06	0·05	0·54	0·66	0·81	0·94	9·61
Total	1878	2·58	1·97	2·10	2·45	2·82	2·83	3·05	3·52	3·24	2·98	2·89	2·51	32.94
	1879	2·15	1·74	1·66	1·59	1·70	1·76	1·90	2·19	2·17	2·34	2·50	2·19	23·88

For the Surat, Kurrachee, Hyderabad, Shikárpur, and Upper Sind Frontier Districts the rate is higher than it was in 1878, but for the Panch Mahális there is a decrease from 75·66 to 14·47. The maximum rate (2·50) is in November, and the minimum (1·59) in April.

Khándesh.

15. In Khándesh 18,392 deaths were registered, and of these 9,949 were of males, and 8,443 were of females. In 1878 the total was 36,454, so for 1879 the actual number is less by 18,062. For this year the death-rate per 1,000 of population is only 17·88, whilst last year it was 35·44. The highest total mortality (1,883) was in November, and the lowest (1,106) in June. Though cholera was rife during the last 8 months of 1878 there was none in the first half of 1879. It appeared in July and disappeared in October, but there were only 136 deaths from it: last year there were 6,077, a ratio of 5·91 per 1,000. From small-pox the deaths were 98 against 240 in 1878. From fever there were also fewer deaths, only 14,895 against 23,489 in 1878: the ratio per 1,000 being 14·48 and 22·54. The highest number (1,662) was in November, and the lowest (858) in June: in December there were 1,505. During 1878 the maximum (3,905) was in August, and the minimum (941) in February. From bowel complaints there were 2,451 deaths, whilst in 1878 they numbered 4,835; so the ratio per 1,000 is only 2·38 against 4·73. There were 297 deaths from injuries—145 of males and 152 of females.

Násik.

16. The Peint State having lapsed to Government it is now a part and parcel of the Násik Collectorate, and its statistics have this year been dealt with as such, in accordance with Government Resolution in the General Department, No. 2500, dated 12th September 1879. Its area was 984 square miles, and its enumerated population was 47,033, so the area of the Násik Collectorate is now 8,140 square miles, and the population is 734,386. The deaths registered during the year numbered 14,448, and their ratio per 1,000 was 20·19. In 1878 the total was 26,920, exclusive of those in the Peint State, and similarly the ratio was 39·17 per 1,000. The maximum total mortality (1,671) was in January, and the minimum (909) in June. Cholera made its appearance in June, and remained until the end of September,

and the deaths from it in those 4 months were respectively 28, 74, 30, and 2 : a total of 134 against 871 in 1878. There were only 5 deaths from small-pox, against 53 in the previous year. From fever there were 11,709 deaths, whilst in 1878 there were 21,360; so the ratio per 1,000 is 15·94 against 31·07. The greatest number (1,464) was in January, and the least (704) in June. The deaths for the year from bowel complaints were 1122 against 2,010 in the previous year, the contrasted ratios being 1·53 and 2·92. There were 180 deaths from injuries—95 of males and 85 of females..

Ahmednagar.

17. In the Ahmednagar District there were 16,564 deaths, and in 1878 there were 27,955. The ratio per 1,000, for the year, is 21·38 against 36·12 in 1878, and the mean ratio for 5 years is 30·05. The maximum total mortality (2,180) was in August, and the minimum (955) in March. Cholera appeared in June, and remained till October, and the monthly mortality from it was 6, 71, 74, and 35 : a total of 186 against 2,267 in 1878. This death-rate was 0·24 per 1,000 against 2·93 in the previous year. There were only 5 deaths from small-pox, and in 1878 there were only 21. From fever there were 12,425, a rate of 16·06 per 1,000. In 1878 the rate was 26·16 and the total was 20,248. The highest number (1,579) was in August, and the least (726) in March. From bowel complaints there were 1,481 deaths against 2,157 in 1878. There were 201 deaths from injuires—89 of males and 112 of females.

Poona.

18. In the Poona District the deaths numbered 12,593 and in 1878 there were 29,607. The ratio per 1,000 was 13·82 against 32·63 in 1878, and the mean for 5 years is 25·21. The maximum total mortality (1,367) was in December, and the minimum (804) in June. In 1878 these respective extremes were in August, and March. In May there were 2 deaths from cholera, and 2 more in June when it disappeared. In October it re-appeared and there were 2 more deaths; again it disappeared, but in December there was a more severe outbreak with 94 deaths. The total, however, was only 100, whilst in 1878 it was 3,601. There were 24 deaths from small-pox against 40 in the previous year. There were 9,599 deaths from fever, and in 1878 there were 20,612. The rate per 1,000 is 10·57, and last year it was 22·71.: the mean for 5 years is 16·52. The highest number (1,007) was in December, and the least (622) in June. From bowel complaints there were 937 deaths, a rate of 1·03 per 1,000, in 1878 the total was 1,769 and the rate 1·94. There were 308 deaths from injuries—165 of males and 143 of females.

Sholápur.

19. In Sholápur the total of deaths was 23,189, and their ratio per 1,000 was 32·31. In 1878 these numbers were respectively 26,648 and 37·11. The mean rate for 5 years was 30·08. The maximum mortality (3,126) was in July, and the minimum (1,009) in March. The deaths from cholera were 22, whilst in 1878 there were 3,074. It was only present in September and October, and in those months the deaths from it were respectively 13 and 9. There was only 1 death reported from small-pox against 33 in 1878. From fever there were 12,890 and their rate was 17·95 per 1,000. For 1878 the total was 17,023 and the rate was 23·70. The highest number (1,621) was in January, and the lowest (793) in March. From bowel complaints the deaths were 1,490 against 2,230 last year. The respective rates being 2·07 and 3·11. The highest number (194) was in September; and the lowest (76) in April. There were 294 deaths from injuries—116 of males and 178 of females.

Sátára.

20. In the Sátára District the total of deaths was 21,233, and in 1878 it was 40,872. The death-rates per 1,000 were respectively 20·01 and 38·52, that for the preceding 5 years being 29·88. The maximum total mortality (2,198) was in August, and the minimum (1,439) in February. There were no deaths from cholera. The deaths from small-pox were 3 against 50 in 1878, and those from fever were 17,286 against 27,351, the rates being 16·30 against 25·77 per 1,000. The highest number (1,648) was in August, and the lowest (1,200) in February. From bowel complaints there were 1,494 deaths, and last year there were 4,121; the respective rates were 1·41 and 3·83 per 1,000. There were 434 deaths from injuries—193 of males and 241 of females.

Belgaum.

21. In the Belgaum District there were 26,674 deaths, and in 1878 there were 44,208. The death-rates per 1,000 were respectively 28·40 and 47·08. The mean for the previous 5 years being 41·33. The maximum total mortality (2,493) was in January and the minimum (1,938) in October. There were no deaths from cholera. From small-pox there were 6 against 105 last year. There were 18,922 deaths from fever, and in 1878, there were 25,381; the two rates being 20·16 and 27·12 per 1,000 respectively. The greatest number (1,892) occurred in January, and the least (1,219) in October. From bowel complaints there were 1,901 deaths, against 2,540 last year. There were 424 deaths from injuries—222 of males and 202 of females.

Dhárwár.

22. In the Dhárwár District the total of deaths was 24,558, and in 1878 it was 42,365. The respective rates were 24·85, and 42·90, and that for the preceding 5 years was 42·33. The maximum total mortality (3,071) was in January, and the minimum (1,643) in October. No deaths were reported from cholera nor from small-pox. There were 17,802 deaths from fever, and in 1878 there were 29,082. The respective rates were 18·02 and 29·43, whilst that for the preceding 5 years was 22·40. There were 2,461 deaths from bowel complaints against 4,072 last year. There were 445 deaths from injuries—211 of males and 234 of females.

Kaládgi.

23. In the Káladgi District there were 19,190 deaths, against 24,209 in 1878. The death-rate for the year was 23·52, and for the previous year it was 29·67 per 1,000: the mean rate for the preceding 5 years was 38·39. The maximum total mortality (2,353) was in August, and the minimum (1,154) in February. No deaths were reported from cholera, and only 10 from small-pox, against 18 last year. There were 14,372 deaths from fever, and in 1878 there were 16,872. The rates were respectively 17·61 and 20·67 per 1,000, and that for the preceding 5 years was 20·76. The greatest number of deaths from it (1,640) occurred in August, and the least (915) in February. There were 464 deaths from bowel complaints, 0·57 per 1,000: in 1878 there were 516, and the rate was 0·63. There were 517 deaths from injuries—191 of males and 326 of females.

Kánara.

24. In the Kánara District the total of deaths was 13,635, and in 1878 it was 17,242: the rates were respectively 34·22 and 43·27, that for the preceding 5 years being 36·75. The maximum total mortality (1,469) was in January, and the minimum (910) in May. No deaths were reported from cholera, and only 8 from small-pox against 68 last year. There were 8,867 deaths from fever, whilst in 1878 there were 11,542. The respective death-rates were 22·25 and 28·97, that for the previous 5 years being 20·38. The greatest mortality from it (994) was in January, and the least (580) in May. From bowel complaints there were 1,062 deaths against 1,501 in 1878: the rate being 2·66 against 3·76 per 1,000. There were 194 deaths from injuries—136 of males and 58 of females.

Ratnágiri.

25. In the Ratnágiri District there were 27,736 deaths, and last year there were 18,663: the respective rates were 27·22 and 18·31; that for the previous 5 years being 16·27. The maximum total mortality (3,374) was in July, and the minimum (1,713) in November. There were 26 deaths from cholera, whilst last year there were 559. It appeared in June and disappeared in August. The deaths from small-pox were 24, against 98 in 1878. From fever there were 19,955 against 10,667: the rates were respectively 19·58 and 10·47 per 1,000, and that for the preceding 5 years was 7·76. The greatest number (2,458) occurred in July, and the least (1,130) in November. From bowel complaints there were 2,092 deaths against 1,851 in 1878, a rate of 2·05 against 1·82 per 1,000 last year. There were 546 deaths from injuries—357 of males and 189 of females.

Kolába.

26. In the Kolába District the total of deaths was 6,391, and it was 6,665 in 1878: the rates were 18·24 and 19·02 per 1,000 respectively, and the mean for the previous 5 years was 15·10. The maximum total mortality (680) was in August, and the minimum (383) in April. There were 180 deaths from cholera against 787 last year,

and from small-pox there were 41 against 86. The deaths from fever numbered 4,727 and in 1878 they were 4,213: the respective rates were 13·50 and 12·02, and the mean for the previous 5 years was 8·98. The maximum total mortality (518) was in August, and the minimum (264) in June. From bowel complaints there were 135 deaths against 215 in 1878. There were 115 deaths from injuries—66 of males and 49 of females.

City of Bombay.

27. In the City of Bombay there died 11,855 males and 10,439 females—a total of 22,294, and a rate of 34·60 per 1,000. In 1878 the male deaths were 14,460, and the female were 12,226—a total of 26,686, and the rate was 41·41 per 1,000: the mean for the previous 5 years was 35·10. The maximum total mortality (2,022) was in January, and the minimum (1,515) in June. From cholera there were 323 deaths against 1,165 in 1878, and from small-pox there were 478 against 353. The total of deaths from fever was 8,441, and in 1878 it was 9,905. The respective ratios were 13·10 and 15·37, whilst the mean for the previous 5 years was 12·05. The deaths from bowel complaints were 2,467 against 3,028 last year. There were 398 deaths from injuries—275 of males and 123 of females.

Thána.

28. In the Thána District there were 17,497 deaths, and last year there were 20,962: the respective rates were 20·66 and 24·74 per 1,000, the mean for the previous 5 years being 22·64. The maximum total mortality (1,956) was in November, and the minimum (1,163) in May. Cholera was rife from April till the end of the year, but the deaths were fewer than those in 1878, there were 770 against 1,809, and the ratio was 0·91 against 2·13. From small-pox there were 5 deaths against 81 in 1878. From fever there were 14,199 deaths against 16,017 last year: the greatest number (1,709) occurred in December, and the least (853) in May. There were 216 deaths from bowel complaints against 346 in 1878. The deaths from injuries were 420—252 of males and 168 of females.

Surat.

29. In the Surat District the deaths for the year were 17,711 against 15,810 last year; and the rates were 29·17 and 26·04 per 1,000 respectively, that for the previous 5 years being 25·90. The maximum total mortality (2,461) was in November, and the minimum (1,076) in June. There were 509 deaths from cholera, and 4 only from small-pox, whilst last year there were 1,726 and 91 respectively. From fever there were 13,677 deaths, and last year they numbered 10,442: the greatest number of them (2,085) was in November and the lowest (792) in June. The deaths from bowel complaints were 1,500 against 1,493 in 1878. There were 316 deaths from injuries—180 of males and 136 of females.

Broach.

30. In the Broach District the total of deaths was 13,570, and in 1878 it was 15,208: the respective rates were 38·73 and 43·41, whilst the mean for the previous 5 years was 26·80. The maximum total mortality (2,993) was in November, and the minimum (413) in June. There were 8 deaths from cholera, and from small-pox 1 only against 154 last year. From fever there were 11,755 against 11,956. The greatest and least numbers from it were in November and June when they were 2,850, and 313 respectively. There were 881 deaths from bowel complaints against 927 in 1878. The deaths from injuries were 157, of these 67 were males and 90 females.

Kaira.

31. In the Kaira District there were 29,213 deaths, and in 1878 there were 30,890. The respective rates were 37·32 and 39·46, that for the previous 5 years being 25·85. The maximum total mortality (5,608) was in October, and the minimum (1,172) in April. Cholera was present from April to September, and caused 129 deaths: last year there were 1,594. From small-pox there were only 5 deaths, and in 1878 there were 1,061. Similarly from fever there were 26,227 against 23,915. The greatest number of deaths (5,257) occurred in October, and the lowest (986) in April. There were 1,676 deaths from bowel complaints against 2,902 in 1878. The deaths from injuries were 388, of these 228 were males and 160 females.

Panch Mahâls.

32. In the Panch Mahâls the total of deaths was 3,483, and in 1878 it was 18,214: the comparative rates were 14·47 and 75·65 per 1,000, for the previous 5 years the mean was 28·44. The maximum total mortality (492) was in January, and the minimum (146) in June. No deaths were reported from cholera, and only 2 from small-pox, whilst in 1878 there were 4,130 from the former disease, and 209 from the latter. From fever there were 3,055 deaths, and last year there were 9,180: their rates per 1,000 being respectively 12·69 and 38·13. The greatest number (422) occurred in January, and the lowest (112) in June. There were 170 deaths from bowel complaints, and last year there were 1,984. There were 130 deaths from injuries—73 of males and 57 of females.

Ahmedabad.

33. In the Ahmedabad District there were 31,243 deaths, and in 1878 there were 34,305: the respective rates were 37·65 and 41·34 per 1,000, and the mean for the previous 5 years was 27·34. The maximum total mortality (4,839) was in November, and the minimum (1,420) in June. From cholera there were 274 deaths against 2,793 in 1873. From small-pox too there were only 19 deaths against 1,158. The deaths from fever were 25,807, and last year they were 23,518, the rates being respectively 31·10 and 28·34 per 1,000. The greatest number (4,329) occurred in November, and the least (1,056) in June. The deaths from bowel complaints were 1,799 against 2,227 in 1878. There were 213 deaths from injuries—101 of males and 112 of females.

Kurrachee.

34. In the Kurrachee District the total of deaths was 7,327, and in 1878 it was 7,275: the rates per 1,000 were 17·30 and 17·18 respectively, and that for the previous 5 years was 14·08; the maximum total mortality (1,092) was in June, and the minimum (389) in September. There were no less than 1,175 deaths from cholera, whilst in 1878 it was entirely absent. From small-pox there were 7 deaths, and last year there were 11. From fever there were 4,887 against 5,323: the greatest number (655) occurred in January, and the least (270) in August. The deaths from bowel complaints were 108 against 97 in 1878. There were 279 deaths from injuries—200 of males and 79 of females.

Hyderabad.

35. In the Hyderabad District there were 9,836 deaths, and in 1878 there were 9,764: the respective rates per 1,000 were 13·62 and 13·52, and the mean for the previous 5 years was 10·41 The maximum total mortality (1,361) was in June, and the minimum (394) in August. There were 1,433 deaths from cholera, and from small-pox there were 54 against 115 last year. From fever there were 7,214 against 8,282; the greatest number (1,174) took place in January, and the least (202) in July. The deaths from bowel complaints were 97 against 107. There were 516 deaths from injuries—387 of males and 129 of females.

Thar and Párkar.

36. In the Thar and Párkar District the total of deaths was 1,960, and last year there were 3,752: the rates per 1,000 were respectively 10·84 and 20·75, and the previous 5 years' mean was 11·42. The maximum total mortality (273) was in February, and the minimum (90) in July. The deaths from cholera were this year 74 against 26, and from small-pox 7 against 17. From fever there were 1,739 against 3,379; the greatest number (260) occurred in February, and the least (70) in July. There were 19 deaths from bowel complaints, and last year there were 38. The deaths from injuries were 58—42 of males and 16 of females.

Shikárpur.

37. In the Shikárpur District there were 7,940 deaths, and in 1878 there were 7,551: the rates per 1,000 were respectively 10·23 and 9·72, and the mean for the previous 5 years was 9·66. The maximum total mortality (1,208) was in June, and the minimum (391) in August. Last year no deaths were reported from cholera, but this year there were 1,359. From small-pox there were 283 against 300. From fever there were 5,508 against 6,517, the rates being 7·10 and 8·39 per 1,000. The greatest number (628) occurred in December, and the lowest (243) in August. There were 279 deaths from bowel complaints, against 188 in 1878. From injuries there were 257 deaths, of these 170 were males and 87 females.

Upper Sind Frontier.

38. In the Upper Sind Frontier District the total of deaths was 865, and last year it was 726: the rates were respectively 9·61 and 8·06 per 1,000, and the previous 5 years' mean was 8·87. The maximum total mortality (141) was in June, and the minimum (45) in August. There were 99 deaths from cholera, and from small-pox there were 66, whilst in 1878 there were only 4. The deaths from fever were 568 against 602 last year: the maxima and minima from it were in January and May and were 73 and 22 respectively. From bowel complaints there were 47 deaths, and in 1878 there were 11. There were 20 deaths from injuries—15 of males and 5 of females.

Deaths at different age periods.

39. The Table on page 11 shows, for each district, the number of deaths at the different age periods, and in this report the ratios per 1,000 are calculated upon the living numbers for those same periods: thus the ratio for infants under 1 year is calculated upon the number of living infants under 1 year, and so on. It will be seen that, for the Presidency, the mortality amongst those 60 years of age and upwards was at the rate of 119·60 per 1,000, and it ranged from a maximum of 295·12 in the Kaira District, to a minimum of 26·92 in Thar and Párkar. The period of greatest immunity was that "above 12 and under 20" when the rate was only 9·43 per 1,000. For infants under 1 year the rate is 76·13 per 1,000, but for the City of Bombay it is 458·13, and the percentage is 23·66, nearly a quarter of the total mortality for the year. Here too for those "above 1 and under 6 years" the rate is 65·64 per 1,000, whilst for the Upper Sind Frontier it is only 2·99. The Sholápur District has the somewhat high rate of 22·31 per 1,000 for those above 6 and under 12.

Deaths by caste or class.

40. We next come to deaths by caste or class. By the census the Mahomedans numbered 2,842,762, and there were 51,461 deaths amongst them: their death-rate was 18·10, and last year it was 21·78. There are 13,110,464 Hindus, and the total of their deaths was 329,452, so their death-rate was 25·13 per 1,000. For Christians the total was 2,609, and last year it was 2,732. The respective rates are 24·60 and 25·76. For all other castes and classes the deaths were 4,020, or 23·72 per 1,000 of their numbers living. For Mahomedans the maximum and minimum rates were 41·51 in the City of Bombay, and 7·71 on the Upper Sind Frontier. Amongst Hindus the maximum (38·91) was in the Broach District, and the minimum (11·98) in Thar and Párkar.

41. The next Table gives the total deaths from specified causes for each year from 1874, and the means for the 5 years. The diseases will be dealt with in Section II:—

Years.	Cholera.	Small-pox.	Fever.	Bowel Complaints.	Injuries.	All other Causes.	Total.
1874	37	3,903	183,717	26,990	6,165	57,840	278,652
1875	47,555	3,461	219,156	33,650	6,217	65,679	375,718
1876	32,117	11,817	220,833	33,683	5,928	63,882	368,260
1877	57,252	27,369	336,865	60,257	7,539	138,426	627,708
1878	46,743	4,475	357,376	41,165	7,550	75,642	532,951
Mean for the last 5 years	36,741	10,205	263,589	39,149	6,680	80,294	436,658
1879	6,937	1,156	286,526	26,349	7,107	59,467	387,542

42. The lapsing of the Peint State has added another to our rural circles, and there are now 223 with an aggregate enumerated population of 14,341,379. In addition there are 55 town circles, 7 cantonments in British, and 10 in *quasi*-foreign territory. For the town and cantonment circles the collec-

Districts.	Under 1 year.			1 and under 6.			6 and under 12.			12 and under 20.			20 and under 30.			30 and under 40.			40 and under 50.			50 and under 60.			60 and upwards.			Total.	
	Number of Deaths.	Ratio per 1,000 of Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 of Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 of Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 of Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 of Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 of Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 of Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 of Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 of Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 of Population.
Khándesh	3,381	82·71	18·38	3,889	19·65	21·15	965	6·57	5·25	809	5·43	4·40	1,752	8·97	9·53	1,733	12·46	9·40	1,708	19·98	9·30	2,031	42·82	11·04	2,124	79·26	11·55	18,392	17·88
Násik	2,301	73·17	15·92	2,522	18·43	17·46	988	8·78	6·83	1,226	11·47	8·50	1,652	11·52	11·43	1,522	16·02	10·53	1,338	23·22	9·27	1,329	40·73	9·19	1,570	86·59	10·87	14,448	20·19
Ahmednagar	2,392	76·39	14·44	2,638	19·11	16·00	946	7·83	5·71	711	6·24	4·29	1,510	9·82	9·11	1,758	17·85	10·60	1,656	25·67	9·95	2,285	61·32	13·79	2,668	167·81	16·11	16,564	21·38
Poona	1,117	35·85	9·00	1,459	9·04	11·59	701	5·18	5·57	863	6·64	6·83	1,489	8·38	11·82	1,500	12·35	11·91	1,559	20·09	12·37	1,854	37·94	14·72	2,051	39·21	16·20	12,593	13·82
Sholápur	1,088	40·13	4·69	2,281	18·43	9·83	2,380	22·31	10·26	1,508	15·32	6·50	2,867	20·28	12·36	3,478	35·82	15·00	3,383	51·41	14·57	3,518	88·87	15·17	2,686	147·36	11·63	23,189	32·31
Sátára	2,892	98·38	13·62	3,421	19·21	16·11	1,101	6·91	5·19	913	6·94	4·30	1,693	8·86	7·97	1,957	13·13	9·20	2,240	21·59	10·55	2,905	43·23	13·68	4,111	79·35	19·36	21,233	20·01
Belgaum	2,468	68·54	9·14	4,189	26·37	15·68	1,761	11·94	6·60	1,237	9·31	4·64	2,818	16·66	10·46	3,233	26·00	12·12	3,344	39·59	12·91	3,224	63·75	12·04	4,400	136·23	16·50	26,674	28·40
Dhárwár	2,717	68·04	11·06	3,319	20·85	13·52	1,678	10·73	6·83	1,529	9·84	6·23	2,976	16·15	12·12	3,087	24·76	12·57	3,038	35·32	12·37	3,046	55·33	12·40	3,168	116·56	12·90	24,558	24·85
Kaládgi	638	35·67	3·33	1,644	10·22	8·56	1,488	12·99	7·75	1,268	11·56	6·61	2,488	16·20	12·76	3,034	26·39	15·81	3,165	41·04	16·49	2,864	71·75	14·92	2,601	95·20	13·55	19,190	23·52
Kánara	1,907	151·29	13·99	1,495	25·17	10·97	664	10·49	4·87	944	11·98	6·92	2,259	26·70	16·57	1,935	39·62	14·19	1,533	54·18	11·24	1,493	93·62	10·95	1,405	211·09	10·30	13,635	34·22
Ratnágiri	1,257	28·96	4·53	2,801	14·96	10·10	1,462	8·87	5·27	1,597	10·92	5·76	3,198	17·93	11·53	3,350	29·11	12·08	3,599	42·21	12·98	4,272	76·19	15·40	6,200	170·51	22·35	27,786	27·22
Kolába	708	53·10	11·08	1,151	17·45	18·01	449	8·19	7·02	357	6·52	5·59	732	10·56	11·45	734	17·35	11·49	708	25·97	11·08	686	43·95	10·73	866	122·46	13·55	6,391	18·24
Bombay City	5,274	458·13	23·66	3,774	65·64	16·93	974	16·03	4·37	1,626	16·86	7·29	3,189	18·80	14·30	2,444	20·76	10·96	1,606	23·35	7·20	1,694	48·31	7·60	1,713	63·42	7·69	22,294	34·60
Thána	2,118	78·77	12·10	3,284	19·84	18·77	1,073	8·17	6·13	974	7·59	5·57	2,243	12·63	12·82	2,145	19·31	12·26	1,935	31·98	11·06	1,877	59·07	10·73	1,848	128·41	10·56	17,497	20·66
Surat	2,453	94·31	13·85	4,146	37·91	23·41	1,057	11·66	5·97	746	8·50	4·21	1,634	14·57	9·22	1,655	19·64	9·35	1,629	32·57	9·20	1,690	57·49	9·54	2,701	154·21	15·25	17,711	29·17
Broach	1,311	90·44	9·66	3,109	54·71	22·91	686	13·68	5·06	513	9·66	3·78	1,219	17·06	8·98	1,437	28·37	10·59	1,670	56·12	12·31	1,629	101·50	12·45	1,936	266·96	14·26	13,570	38·73
Kaira	3,574	152·04	12·23	5,961	41·31	20·41	1,331	11·30	4·56	1,068	8·78	3·66	2,168	14·81	7·42	2,779	25·76	9·51	3,223	48·95	11·03	3,837	100·23	13·14	5,272	295·12	18·04	29,213	37·32
Panch Mahals	475	42·65	13·64	643	13·94	18·46	246	6·20	7·06	201	5·50	5·77	354	7·64	10·16	433	13·59	12·43	381	23·33	10·94	423	45·10	12·14	327	97·58	9·40	3,483	14·47
Ahmedabad	3,550	130·26	11·36	5,774	43·48	18·48	2,768	21·68	8·86	2,320	16·77	7·43	3,249	20·58	10·40	3,395	28·81	10·87	3,572	50·05	11·43	3,572	95·17	11·43	3,043	160·08	9·74	31,243	37·65
Kurrachee	671	43·86	9·16	650	8·12	8·87	485	7·85	6·62	463	8·43	6·32	1,103	12·73	15·05	1,248	19·62	17·03	980	29·64	13·38	711	43·28	9·70	1,016	87·13	13·87	7,327	17·80
Hyderabad	813	28·79	8·27	870	5·97	8·85	644	5·47	6·55	682	6·66	6·94	1,455	9·95	14·79	1,549	15·91	15·74	1,519	32·29	15·44	1,091	43·81	11·09	1,213	97·57	12·33	9,836	13·62
Thar and Párkar	247	34·00	12·60	238	8·38	12·14	141	4·41	7·19	133	6·02	6·80	207	7·36	10·56	236	9·27	12·04	241	13·44	12·30	237	25·36	12·09	280	26·92	14·28	1,960	10·84
Shikárpur	898	29·34	11·31	864	5·15	10·88	583	5·31	7·34	515	5·09	6·49	1,133	7·37	14·27	1,345	12·37	16·94	995	18·46	12·53	708	21·59	8·92	899	50·43	11·32	7,940	10·23
Upper Sind Frontier	109	32·81	12·60	54	2·99	6·24	74	5·25	8·55	63	5·64	7·28	128	7·81	14·80	162	12·62	18·73	126	17·32	14·57	75	17·35	8·67	74	29·14	8·56	865	9·61
Total ..	44,359	76·13	11·45	60,176	20·89	15·53	24,645	11·17	6·36	22,266	9·43	5·74	43,516	13·80	11·23	46,149	20·91	11·91	45,148	33·08	11·65	47,111	59·50	12·16	54,172	119·60	13·97	387,542	23·88

tive numbers are 1,974,590 so we have a grand total of 16,315,969. The death ratios per 1,000 will be seen in the subjoined Statement:—

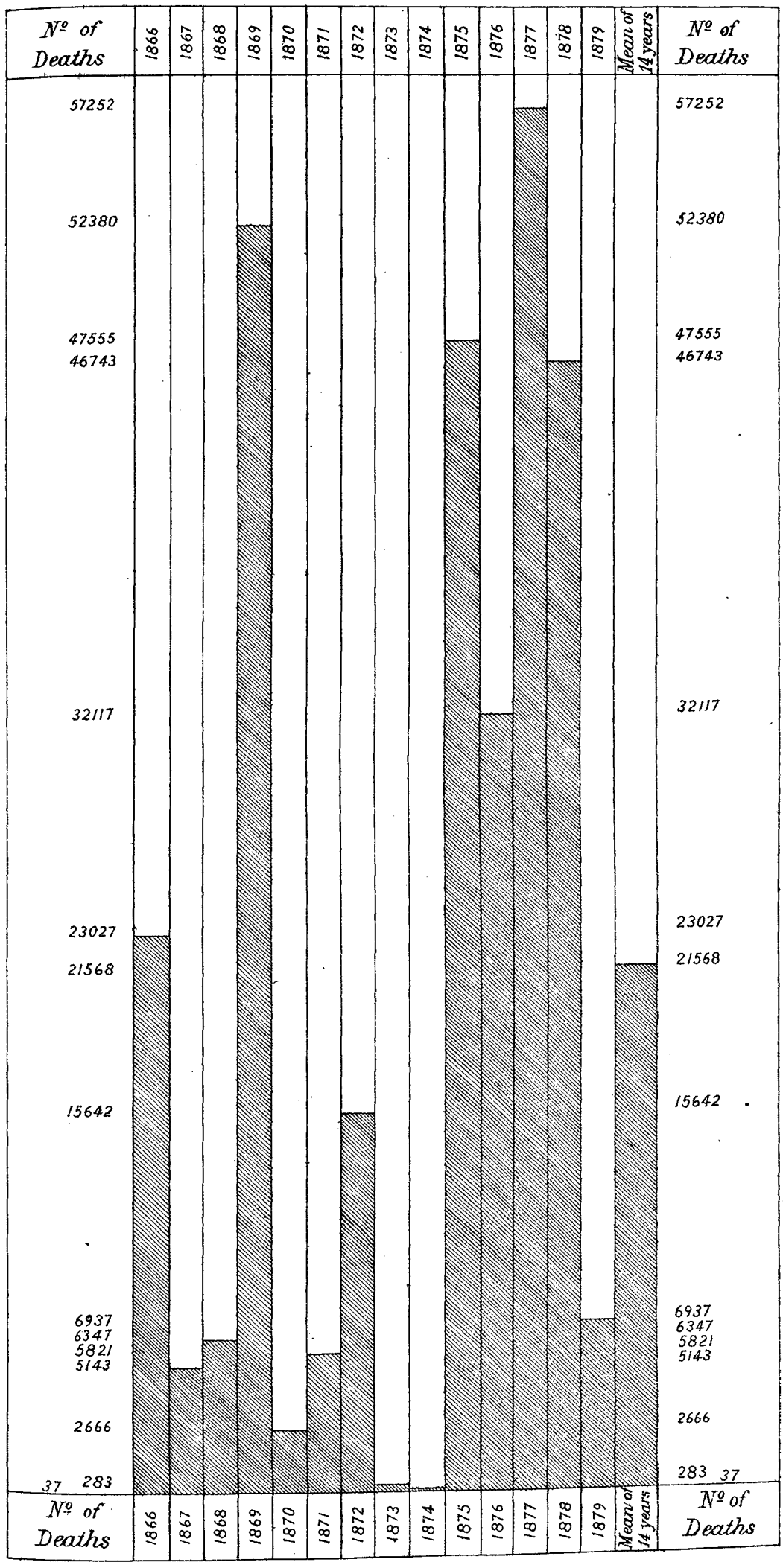
Districts.	Number of Registration Circles				Population.				Ratio of Deaths per 1,000 of Population.			
	Rural Circles.	Towns	Cantonments.	Total.	Rural Circles.	Towns.	Cantonments.	Total.	Rural Circles.	Towns.	Cantonments.	Total.
Khándesh	22	4	..	26	985,308	43,334	..	1,028,642	17·76	20·61	..	17·88
Násik	12	2	2	16	689,355	39,897	5,134	734,386	20·09	28·75	27·66	20·19
Ahmednagar	11	2	1	14	727,136	42,819	3,983	773,938	21·32	28·00	16·36	21·38
Poona	8	2	1	11	778,051	100,734	28,450	907,235	13·47	16·07	16·10	13·82
Sholápur	7	3	..	10	629,796	88,238	..	718,034	22·67	101·03	..	32·31
Sátára	12	3	..	15	1,014,046	46,956	..	1,061,002	20·03	17·44	..	20·01
Belgaum	7	3	1	11	882,273	51,147	5,330	938,750	28·28	29·01	45·96	28·40
Dhárwár	14	4	..	18	892,282	95,755	..	988,037	25·36	20·07	..	24·85
Kaládgi	8	1	1	10	809,445	6,592	..	816,037	23·33	43·46	..	23·52
Kánara	11	2	..	13	374,211	24,195	..	398,406	35·19	19·22	..	34·22
Ratnágiri	8	2	..	10	993,526	25,610	..	1,019,136	27·43	18·55	..	27·22
Kolába	6	2	..	8	338,301	12,104	..	350,405	17·93	26·60	..	18·24
Bombay City	..	1	..	1	....	644,405	..	644,405	..	34·60	..	34·60
Thána	11	3	..	14	809,485	37,939	..	847,424	20·59	21·75	..	20·66
Surat	8	2	..	10	488,623	118,464	..	607,087	31·30	20·37	..	29·17
Broach	6	2	..	8	298,466	51,856	..	350,322	40·33	29·50	..	38·73
Kaira	7	4	..	11	719,305	63,428	..	782,733	37·90	30·68	..	37·32
Panch Mahals	5	2	..	7	218,630	22,113	..	240,743	13·48	24·14	..	14·47
Ahmedabad	7	4	1	12	660,795	166,959	1,883	829,637	33·08	55·62	48·85	37·65
Kurrachee	13	1	..	14	369,969	53,526	..	423,495	15·41	30·43	..	17·13
Hyderabad	13	1	..	14	686,675	35,272	..	721,947	12·23	40·71	..	13·62
Thar and Párkar ..	7	1	..	8	176,762	3,999	..	180,761	10·67	18·50	..	10·84
Shikárpur	17	3	..	20	714,159	62,068	..	776,227	9·04	23·91	..	10·28
Upper Sind Frontier ..	3	1	..	4	84,780	5,205	..	89,985	7·37	46·11	..	9·61
Total ..	223	55	7	285	14,341,379	1,842,615	44,780	16,228,774	22·53	33·56	22·44	23·88

Statistics for Cantonment Bázárs in *quasi*-foreign territory.

43. The following Table shows the births and deaths, and their respective ratios per 1,000 for those in our cantonment bázár in *quasi*-foreign territory. It will be seen that the births registered were 1,617 against 2,216 in 1878: there were 868 males and 749 females, the rate per 1,000 of the two sexes being 18·54 against 25·41 last year. Except at Mehidpur, where the rate was the same, it was lower everywhere than in 1878. At Bhuj not one single birth has been returned, though last year their rate was 53·48 per 1,000. The total of deaths was 2,822, and their rate was 32·36 per 1,000. No deaths were reported from cholera, but there were 1,369 from fever and 47 from small-pox: of these last 46 occurred at Nasirabad:—

Stations.	Civil Population.	Area in square miles.	Average Population per Square miles.	Number of Deaths.							Ratio per 1,000 of Population.							Births.	Ratio of Births per 1,000 of Population.
				Cholera.	Small-pox.	Fever.	Bowel Complaints.	Injuries.	All other Causes.	Total.	Cholera.	Small-pox.	Fever.	Bowel Complaints.	Injuries.	All other Causes.	Total.		
Aden	19,289	11·69	1,650·04	..	..	318	202	8	229	757	..	..	16·49	10·47	0·41	11·87	39·24	220	11·41
Baroda	2,451	9·00	272·33	..	..	97	4	1	9	111	..	..	39·57	1·63	0·41	3·67	45·28	13	5·30
Bhúj	991	1·04	952·88	..	..	7	..	..	..	7	..	..	7·06	..	..	..	7·06	..	..
Deesa	9,335	5·00	1,867·00	..	..	54	21	..	46	121	..	..	5·78	2·25	..	4·93	12·96	82	8·78
Kolhápur	646	1·21	533·89	..	..	6	1	2	11	20	..	..	9·28	1·55	3·10	17·03	30·96	19	29·41
Mehidpur	155	2·50	62·00	..	..	1	..	..	1	2	..	..	6·45	..	..	6·45	12·90	1	6·45
Mhow	22,792	6·50	3,506·46	..	1	245	29	13	258	546	..	0·04	10·75	1·27	0·57	11·32	23·95	596	26·15
Neemuch	11,787	4·23	2,786·52	..	..	149	..	5	54	208	..	..	12·64	..	0·42	4·58	17·64	89	7·54
Nasirabad	18,336	8·00	2,292·00	..	46	484	78	5	396	1,009	..	2·51	26·40	4·25	0·27	21·60	55·03	563	30·70
Rájkot	1,413	Unknown.		..	..	8	..	..	33	41	..	..	5·66	..	..	23·35	29·01	34	24·06
Total ..	87,195	49·17	1,773·34	..	47	1,369	335	34	1,037	2,822	..	0·54	15·70	3·84	0·39	11·89	32·36	1,617	18·54

Diagram, showing Cholera Mortality for 14 years.



Lithographed, Gov^t Photozinco Office, Poona, 1880.

SECTION II.

HISTORY OF CHIEF DISEASES.

CHOLERA.

Cholera wave or revival.

1. In last year's Report I spoke of a cholera wave which, in this Presidency, surged and retired every three years, and though our complete returns only date from 1866, no one can look at them without seeing how rhythmic has been the rise and fall. Showing the annual mortality from cholera by diagram the starting point in 1866 is at 23,027 of the scale, and the line then goes down to 5,143 and 6,347. It then ascends to 52,380, and falls to 2,666 and 5,821. The next rise is a comparatively slight one, only to 15,642, and the fall is first to 283, and afterwards to 37, the minimum yet recorded. From this minimum there is again a rise, this time to 47,555, and now there is evidently a disturbing factor, for instead of the usual well-marked fall, it goes down as far as 32,117, and then shoots up to 57,252 the maximum. The next point is 46,743 and there seemingly the equilibrium is recovered, for the next fall is to 6,937. Now here we have the register of 14 years, and from 1866 to 1879, both years inclusive, the total mortality from cholera is 301,950; but as there is no complete record of what preceded the first year of the 14, I propose to take the 13 which followed, and deal with them. Taking then this period we may divide it into one of 9 years, before the balance was disturbed, and a subsequent one of 4 years. In the 9 years the total of deaths is 135,874, but 115,577 of them occurred in 3 years, and 20,297 are distributed over 6. Coming now to the 4 years' period, when the rhythm was broken, the first *two*, which should have been years of exemption, show a mortality four times heavier than that of the *six* immunity years of the first period; for the six the numbers are 20,297, and for the two they are 89,369: for the next year they are 46,743, so the sum of the three is 136,112, nearly half of the 14 years' total. In the first of the three dark years the downward tendency of the line was arrested by growing distress, and great scarcity, on the second it was forced upwards by famine, and on the third there were such predisposing causes in the desolated areas, that many must have succumbed who might otherwise have escaped. In Gujarát too, and in the Northern Deccan the mortality was high, but then, judging by the past, it was a year in which a high rate might be expected. Similarly in 1879 it should have been low, and it was exceptionally low: not one single cholera death was returned from the Southern Deccan, and there were only 2,797 for the whole of the Northern Deccan, and the Konkan, and Gujarát. In Sind, however, there was an unusually severe outbreak, and there the deaths were 4,140. If we forecast the future by the returns of the past the current year should be one of exemption, but for 1881 there is a presage of evil.

Diagram lines.

Cholera wave or revival in other Provinces.

2. Having seen that, in this Presidency, there has been a cholera wave or revival, every third year, and that the intervening years are periods of comparative immunity, let us look at the returns of other Provinces. From Bengal none are forthcoming, but those for Madras begin like ours in 1866, and like ours their mortality in that year was a heavy one. On a population of 21,844,694, and in a total of 600,106 deaths from all causes, the deaths from cholera were 200,961: for the next year they were 33,205, and for the next only 8,036. A total of 33,205 would here be deemed a high one, but as it was less by 167,756 than that for 1866, it may fairly be said, that the high mortality of that year was followed by two seasons of comparative immunity. For 1869 the total was 21,034, higher than that of the previous year by 12,998, and thus denoting a revival: for the next it was 55,867, and for the next only 17,656. Had the sequence been 55,867, 21,034,

Madras.

17,656 instead of 21,034, 55,867, 17,656 they would have had 3 consecutive triplets of years, as we had, in which two low numbers were preceded by a high one. The total for 1872 is only 13,247, and for the two following years the numbers are 840 and 313, their minimum. The next triplet is a terrible one, for it commences with 94,546, and is followed by 148,193, and 357,430, their maximum. These later years were those of drought and famine, and their severity may be seen in the death roll. In that fatal 1877 when our cholera deaths were 57,252, Madras had 357,430; and in a population of 29,209,542 the deaths from all causes reached the appalling total of 1,556,312. In that year cholera carried off 12 out of every 1,000 living, and caused 230 out of every 1,000 deaths. In 1878 their cloud had lifted, and for that year the total is 47,167, their mean for 13 being 76,807. For the Central Provinces the returns also date from 1866, and there for each triplet of years there are two low numbers, and a high one, but the sequence is irregular. On the first occasion the highest is last, on the second and third it is first, on the fourth it is on the middle, and for the first year of the fifth (1878) the last of the record, the total is higher than any since 1869. The returns for the Punjáb, the Hyderabad Assigned Districts, the North West Provinces, and Assam range from 12 to 5 years, and it will be seen by the subjoined table, that in all of them, whatever the sequence, a high number is invariably associated with two lower:—

Central Provinces.

Provinces.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	Means.	1879.
Bombay	23,027	5,143	6,347	52,380	2,666	5,821	15,642	283	37	47,555	32,117	57,252	46,743	22.693	6,937
Madras	200,961	33,205	8,036	21.034	55,867	17,656	13,247	840	343	94,546	148,193	357,430	47,167	76,807	..
Central Provinces	6,046	225	10,107	57,079	107	19	1,592	344	14	14,643	20,124	3,418	40,985	11,900	..
Punjab	..	43,146	532	9,258	469	369	8,727	148	78	6,246	5,736	29	215	*6,246	..
Hyderabad Assigned Districts	..	..	5,447	10,947	504	581	1,578	..	2	22,465	2,683	842	34,306	†7,214	..
North-West Provinces ..	..	..	..	..	28,441	19,505	77,131	19,229	6,464	64,427	48,311	31,770	22,221	‡35,278	..
Assam	..	..	..	..	..	..	..	..	16,478	6,618	8,615	11,377	6,732	§9,964	..

* Means for 12 years.
† „ 11 „
‡ „ 9 „
§ „ 5 „

3. For the year under report the total of deaths is 6,937 and it is less by 15,756 than our 13 years' mean, so it is a year of exemption. The ratio per 1,000 living is 0·43, the mean being 1·50, and out of every 1,000 deaths there were 17·9 from cholera.

1879.

4. Showing the mortality by the conventional seasons into which the year has been divided, it will be found that 4,683 out of the 6,937 deaths occurred in the rainy season of 122 days:—

Mortility by seasons.

Years.	Cold Season (121 Days).				Hot and Dry (61 Days).		Rainy Season (122 Days).				Hot and Damp (61 Days).		Total Deaths from Cholera.
	December (31).	January (31).	February (28).	March (31).	April (30).	May (31).	June (30).	July (31).	August (41).	September (30).	October (31).	November (30).	
1866	82	160	1,026	2,486	2,706	4,107	3,905	2,036	3,600	2,043	748	128	23,027
1867	201	56	76	53	86	64	97	216	2,597	1,386	314	87	5,143
1868	452	64	60	60	61	70	79	405	871	1,287	1,890	1,048	6,347
1869	278	1,089	999	1,676	6,466	9,761	9,566	9,818	4,443	3,433	3,734	1,117	52,380
1870	453	62	25	30	25	56	67	41	158	265	586	898	2,668
1871	181	351	237	174	137	591	804	1,005	1,014	555	598	174	5,821
1872	71	61	82	113	237	1,098	3,127	3,932	3,991	2,145	611	174	15,642
1873	2	61	100	35	34	24	10	6	3	3	3	2	283
1874	..	2	..	4	8	13	1	3	1	3	2	..	37
1875	819	1	1	10	795	5,359	10,374	12,906	8,609	3,493	3,548	1,640	47,555
1876	2,087	899	1,453	3,519	3,773	5,312	4,168	4,423	3,371	1,421	858	833	32,117
1877	797	3,734	4,488	6,887	8,114	8,299	8,320	7,673	5,143	1,874	1,110	813	57,252
1878	88	735	616	1,586	6,415	9,964	10,950	7,891	5,928	1,882	434	254	46,743
Means for 13 years	424	560	705	1,279	2,220	3,440	3,959	3,874	3,049	1,522	1,110	551	22,693
1879	173	78	18	21	64	1,176	2,684	1,088	510	401	541	185	6,937

Abstract.

Seasons.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	Means for 13 Years.	1879.
Cold (121 Days) ..	3,754	386	636	4,042	570	943	327	198	6	831	7,958	15,906	3,025	2,968	290
Hot and Dry (61 Days).	6,813	150	131	16,227	81	728	1,335	58	21	6,154	9,085	16,413	16,379	5,660	1,240
Rainy (122 Days) ..	11,584	4,206	2,642	27,260	531	3,378	13,195	22	8	35,382	13,383	23,010	26,651	12,404	4,683
Hot and Damp (61 Days)	876	401	2,938	4,851	1,484	772	785	5	2	5,188	1,691	1,923	638	1,661	724
Total ..	23,027	5,143	6,347	52,380	2,666	5,821	15,642	283	37	47,555	32,117	57,252	46,743	22,693	6,937

5. In the first quarter of the year the disease was confined to the City of Bombay, and the Districts of Kolába, and Ahmedabad, and out of 169 attacks there were 117 deaths. By the end of the second quarter it had spread all through the Konkan and Gujarát, and extended to Sind: it also appeared in the Districts of Khándesh, Násik, and Ahmednagar. The attacks and deaths were, respectively, 6,224 and 3,927, the percentage of deaths being 63·05. The maximum mortality (2,684) was in June. In the third quarter there was an abatement: the attacks and deaths were 3,598 and 1,999, and the latter were 55·56 per cent. In the fourth quarter there was a futher decline, and at the close of the year the only affected Districts were Bombay City, Kolába, Thána, and Poona. There were 1,530 attacks and 897 deaths.

By Quarters.

6. The next table shows the mortality by months for each year from 1866 to 1879 inclusive, and the mean of 13 years is so placed as to contrast with the totals for the 14th. There are also given the ratios per 1,000 of population, and the number of cholera deaths in every 1,000 from all causes :—

By Months.

Months.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	Means for 13 Years.	1879.
January	160	56	64	1,089	62	351	61	61	2	1	899	3,734	735	569	78
February	1,026	76	60	999	25	237	82	100	..	1	1,453	4,488	616	705	18
March	2,486	53	60	1,676	30	174	113	35	4	10	3,519	6,887	1,586	1,279	21
April	2,706	86	61	6,466	25	137	237	34	8	795	3,773	8,114	6,415	2,220	64
May	4,107	64	70	9,761	56	591	1,098	24	13	5,359	5,312	8,299	9,964	3,440	1,176
June	3,905	97	79	9,566	67	804	3,127	10	1	10,374	4,168	8,320	10,950	3,959	2,684
July	2,036	216	405	9,818	41	1,005	3,932	6	3	12,906	4,423	7,673	7,891	3,874	1,088
August	3,600	2,507	871	4,443	158	1,014	3,991	3	1	8,609	3,371	5,143	5,928	3,049	510
September	2,043	1,386	1,287	3,433	265	555	2,145	3	3	3,493	1,421	1,874	1,882	1,522	491
October	748	314	1,890	3,734	586	598	611	3	2	3,548	858	1,110	434	1,110	541
November	128	87	1,048	1,117	898	174	174	2	..	1,640	833	813	254	551	183
December	82	201	452	278	453	181	71	2	..	819	2,087	797	88	424	173
Total ..	23,027	5,148	6,347	52,380	2,666	5,821	15,642	283	37	47,555	32,117	57,252	46,743	22,693	6,937
Ratio per 1,000 of Population ..	1·85	0·32	0·50	3·77	0·20	0·41	1·03	0·02	0·01	2·93	1·98	3·54	2·89	1·50	0·43
Out of every 1,000 deaths from *all causes* there died from cholera.	124	32	35	184	12	21	44	1	..	126	87	91	88	65	18

7. The table here subjoined shows the enumerated population of each District affected, the deaths by months in each, and for the Presidency generally, the ratios per 1,000 living, and, by way of contrast, a quinquennial mean. It will be found, that, except for the Sind Districts, the ratios are everywhere below the mean :—

Population	1,028,642	734,386	773,938	907,265	719,034	1,019,136	350,405	644,405	847,424	607,087	350,322	782,733	829,637	423,495	721,947	180,761	776,227	89,985
Months.	Total Deaths for Presidency.	Khándesh.	Násik.	Ahmednagar.	Poona.	Sholápur.	Ratnágiri.	Kolába.	Bombay City.	Thána.	Surat.	Broach.	Kaira.	Ahmedabad.	Kurrachee.	Hyderabad.	Thar & Párkar.	Shikárpur.	Upper Sind.
January ...	78	...	...	...	...	...	...	35	27	...	...	...	...	16	...	...	...	...	...
February ...	18	...	...	...	...	...	...	8	10	...	...	...	...	...	...	...	...	...	...
March ...	21	...	...	...	...	...	...	...	13	...	...	...	...	8	...	...	...	...	...
April ...	64	...	...	...	...	...	...	...	4	13	1	4	2	40	...	...	...	...	...
May ...	1,176	...	...	...	2	...	...	...	29	117	81	1	23	104	219	380	8	204	8
June ...	2,684	...	28	6	2	...	22	...	14	200	30	3	5	34	607	909	66	673	85
July ...	1,088	40	74	71	...	...	4	..	33	129	30	...	77	25	322	144	...	133	6
August ...	510	86	30	74	...	...	...	...	74	98	24	...	22	39	26	...	...	37	...
September ...	401	10	2	35	...	13	...	...	64	50	123	...	...	8	1	...	...	95	...
October ...	541	...	...	..	2	9	...	72	41	38	195	...	...	...	...	...	...	184	...
November ...	183	...	...	...	...	...	...	40	10	75	25	...	...	...	...	...	...	33	...
December ...	173	...	...	...	94	...	...	25	4	50	...	...	...	...	...	...	...	...	...
Total ...	6,937	136	134	186	100	22	26	180	323	770	509	8	129	274	1,175	1,433	74	1,359	99
Ratio of Deaths per 1,000 of Population.	0·43	0·13	0·19	0·24	0·11	0·03	0·03	0·51	0·50	0·91	0·83	0·02	0·16	0·33	2·77	1·99	0·41	1·75	1·10
Mean for 5 years.	2·95	1·85	1·08	2·72	2·78	2·81	0·94	1·96	1·52	2·92	1·57	1·66	1·32	1·65	0·02	...	0·13	...	...

8. At the close of 1878 the only place in all the Presidency where there was cholera was the City of Bombay, and on the first day of 1879 a case was reported from Ambeghur, a village of 458 inhabitants in the Pen Táluka of the Kolába Collectorate. Here between the 1st and 20th there were 44 attacks and 20 deaths. In the first 3 days of the month there were 34 cases and 27 deaths in Bombay. On the 18th there were 3, 1 fatal, at Valookhad, a village in the Gogha Táluka of the Ahmedabad Collectorate; on the 20th there was a death at Khari, another village, and between the 20th and 24th it appeared in 6 others, all in the Gogha Táluka: there were 9 cases, and all ended fatally. The attacks and deaths for the month were 117 and 78: the percentage of the latter to the former was 66·66; whilst their percentage to the total of deaths from all causes was only 0·22.

January.

9. On the 12th February a case of cholera was reported from Pen, a town of 6,514 inhabitants in the Kolába Collectorate: between the 12th and 22nd there were 8 cases, and they all ended fatally, but there were no others during the year. In Bombay there were 13 fresh cases and 10 deaths, the last on the 22nd. There were no other cases anywhere, so the total for the month was only 21 attacks and 18 deaths: but the percentage of the latter was 85·71. Their percentage to deaths from all causes was 0·06

February.

10. In March the disease continued in Bombay, and there were 18 attacks and 13 deaths. Between the 20th and 25th there were 12 attacks and 7 deaths at Malpoor, a village of 485 inhabitants in the Gogha Táluka, and on the 31st a fatal case was reported from Dholera in the Dhandhuka Táluka, both in the Ahmedabad Collectorate. The attacks and deaths for the month were 31 and 21: the percentage of the latter to the former was 67·74, and their percentage to deaths from all causes was 0·08.

March.

11. During April it travelled southwards through the Kaira, Broach, Surat, and Thána Districts, and its starting point was Dholera, a town of 12,468 inhabitants. It appeared here on the 1st and lasted about 10 days, causing 5 deaths out of 21 attacks. On the same day, and in the same táluka, there was a case which ended fatally at Bhimnath, a neighbouring village of 874 inhabitants. On the 2nd it appeared at Bhojhura, and in the town of Gogha where it lasted for 25 days, the attacks and deaths being 20 and 11. On the 7th it arrived at Broach, and there were 7 cases and 3 deaths. On the 15th a fatal case was reported from Umbheta, a village in the Hánsot Táluka of the Broach District, and on the 16th there was one at Vásna, a village of 303 inhabitants in the Olpád Táluka of the Surat Collectorate. By the end of the month it had reached the Thána Districts, and appeared in 5 villages of the Bassein Táluka. In Bombay itself there were only 4 deaths. For the month the attacks and deaths were 134 and 64, and the percentage of the latter to the former was 47·76: their percentage to deaths from all causes was 0·26.

April.

12. In May it lingered in the Districts already affected, but in the Thána Collectorate there were 204 attacks and 117 deaths. It appeared too in the City of Poona, where 2 cases ended fatally on the 25th. In this month there was a severe outbreak in Sind, and the first case reported was at Sukkur on the Indus, a town of 13,318 inhabitants. Here between the 5th and 29th there were 196 attacks and 115 deaths, but at that time the place was crowded to overflowing with troops and followers, Ordnance and Commissariat stores, transport animals, and that legion of the unwashed that gathers round an army about to take the field. Under the pressure of war the conditions were unavoidably such, that, at any time, an outbreak might have been expected, indeed the wonder is, that having occurred it was not more severe. From Sukkur it spread through the Shikárpur District generally, and the attacks and deaths were 322 and 204. Four days after its first appearance at Sukkur on the 5th, it reached the town of Kurrachee (9th), but there were only 3 cases, and they all died. It spread however to 6 tálukas and caused 219 deaths. On the 18th it appeared in the town of Hyderabad, where, by the

May.

end of the month, there were 607 attacks and 380 deaths. It then went to the Thar and Párkar District causing 8 deaths out of 12 attacks, the first on the 22nd. Although it quickly covered all the Province, south of Sukkur, it was not until the 24th that it appeared in the Upper Sind Frontier Districts which march with those of Shikárpur on the north, and when it did appear in them there were only 8 cases; but they all ended fatally. The attacks and deaths for the month were 1,928 and 1,176, and the percentage of the latter to the former was 61·05; their percentage to deaths from all causes was 4·19.

June.

13. During June the disease continued in all the places affected in May, and it invaded the Násik, Ahmednagar, and Ratnágiri Collectorates. Taking first the Upper Sind Frontier Districts there was a severe outbreak in the Jacobabad and Kashmor Tálukas where there were 81 deaths out of 100 attacks: 1 fatal case was reported from Thul, and there were 6 in the town of Jacobabad: so the totals for the District were 107 attacks and 85 deaths. In the Shikárpur District there were 1,093 cases, and 673 were fatal: it stayed in this District all the month. In the Umerkot Táluka of the Thar and Párkar District there were 97 attacks and 66 deaths. In the Hyderabad District it also lasted throughout the month, and the attacks and deaths were 1,308 and 909. In the Kurrachee District there were 946 attacks and 607 deaths, and here too it was present through the whole month. We next come to Gujarát. Here, in the Ahmedabad Collectorate, it continued in 5 out of the 12 circles, and invaded a 6th: it appeared too in the town of Ahmedabad, and the attacks and deaths for the district were 73 and 34. In the Kaira Collectorate it was reported from the town of Nadiád, from 2 villages in the táluka of that name, and from 1 village in the A'nand Táluka, but there were only 13 attacks and 5 deaths altogether. In the Broach District it was confined to Sakarpoor, a village of 1,372 inhabitants in the Broach Táluka. There were only 3 cases, but all were fatal, and then for the remainder of the year the District was free. In the Surat Collectorate it appeared in the town of Surat, in 2 villages of the Yellápur Táluka, and 3 of the Bulsár Táluka, and the attacks and deaths were 69 and 30. In the Thána District it appeared in 19 villages of the Bassein Táluka, and in 1 each of the Dáhánu and Sálsette Tálukas. It was in this Collectorate all the month, and the attacks and deaths were 305, and 200. In the City of Bombay it was also present throughout the month, but there were only 21 attacks and 14 deaths. In the Ratnágiri Collectorate there was a case on the 1st at Dápoli, a village in the Dápoli Táluka, and there it remained till the end of the month, the attacks and deaths being 44 and 22. The Poona District was free; but in the City of Poona there were 4 attacks and 2 deaths between the 24th and 30th. In the Násik Collectorate it appeared on the 15th in the town of Málegaon, and continued throughout the month: there were 55 attacks and 26 deaths. On the 17th it appeared in the village of Sangameshvar, and there were 2 fatal cases. On the 20th it was at Pimprinirmal, a village in the Sangamaner Táluka of the Ahmednagar Collectorate, but there were only 2 deaths out of 16 attacks. On the 30th there were 6 attacks and 4 deaths in the village of Poontambe. For this month the attacks and deaths reached the maximum of the year, they were respectively 4,162 and 2,684, and the percentage of the latter to the former was 64·49: their percentage to deaths from all causes was 9·73.

July.

14. Up to July the Khándesh District had escaped, but now, on the 6th, there was a cholera death at the town of Erandol, and from this time to the end of the month there were 26 attacks and 9 deaths there. On the 13th there were 6 attacks and 4 deaths at the town of Dhulia, and on the 15th there were 18 and 3 at Walode, a village of 482 inhabitants. On the 22nd there were 5 cases at Anjunwad, a village in the Shirpur Táluka, and 1 ended fatally. In the Násik Collectorate it continued in the Málegaon Táluka, and on the 2nd it appeared in the town of Yeola, where, up to the end of the month, there were 98 attacks and 50 deaths. On the 18th it was at Chandori, a village in the Niphád Táluka, and there the attacks and deaths were 30 and 12. In the Ahmednagar District it remained in the Kopargaon and Sangamner Tálukas, and on the 14th and 15th invaded those of Nagar and Ankola. On the 31st there was one solitary case, a fatal one, at Takli-Chan, a village of the Nevása Táluka: in all there were 155 attacks and 71 deaths. In

the Ratnágiri District it was present throughout the month, but only in 3 villages of the Dápoli Táluka, and there were only 4 deaths. In the City of Bombay there were 33 deaths. In the Thána District it remained throughout the month in the Dáhánu, Bassein, and Sálsette Tálukas, and the attacks and deaths were 199 and 129. In the Surat Collectorate there were 41 attacks and 29 deaths in the Jaláipur and Bulsár Tálukas between the 1st and 15th, and on the 20th there was 1 fatal case in the town of Surat. In the Kaira District it continued in the town of Nádiad, and appeared on the 23rd in the A'nand Táluka: the attacks and deaths were 228 and 77. In the Ahmedabad Collectorate it lingered in the city and in the Gogha and Sánand Tálukas, but it increased in the Dholka Táluka, and the total of attacks and deaths was 56 and 25. In Sind it was most severe, and most widespread during the whole month in the Kurrachee District, where the attacks and deaths were 505 and 322. For the Hydarabad District there were 198 and 144, but at the end of the month it disappeared or died out, and there were no more cases during the year. In the Shikárpur Collectorate it abated somewhat, but there were 7 tálukas out of 17 in which it remained, and it was also in the town of Lárkhána: the attacks and deaths were 228 and 133. In the Frontier District there were only 14 attacks and 6 deaths, and after the 15th there were no more cases during the year. For the month the attacks and deaths were 1,971 and 1,088, and the percentage of the latter to the former was 55·20, and their percentage to deaths from all causes was 3·46.

August. 15. In August the disease increased in the Khándesh District, and out of 189 cases there were 86 deaths. For the Násik Collectorate there were 30 deaths, and they were reported from 4 villages in the Sinnar Táluka, 1 in the Málegaon Táluka and the town of Yeola. In the Ahmednagar Collectorate the cases during the first week were chiefly in the Kopargaon and Ráhuri Tálukas, and in the second and third weeks there were a few in the Sangamner Táluka, the last attacks were on the 30th and 31st, and 1 ended fatally. For the month they were 136 and 74. In the City of Bombay there were 74 deaths, the maximum for the year. In the Thána District it was present throughout the month, and there were 183 cases, 98 of which were fatal. In the Surat District the type was very severe, for there were 24 deaths out of 26 attacks. In the Kaira District there was a marked decline, and the attacks and deaths were only 50 and 22. For the first 3 days it was in the A'nand Táluka, and in the towns of Kaira and Nadiád, and after the 18th there were no other cases during the year. In the Ahmedabad District it was in the Dholka Táluka from the 1st to the 15th and from the 1st to the 17th in the City of Ahmedabad, where there were 61 attacks and 39 deaths. In the Kurrachee Collectorate it was confined to the Kurrachee Táluka, and there were only 35 attacks and 26 deaths against 505 and 322 in July. In Shikárpur too there were only 54 cases and 37 deaths. For the month the attacks and deaths were 902 and 510, and the percentage of the latter to the former was 56·54, and their percentage to deaths from all causes was 1·43.

September. 16. On the 1st September there was cholera in a village of the Chálisgaon Táluka in Khándesh, and on the same day a fatal case was reported from Nagar-Devláli in the Páchora Táluka, but there were only 10 deaths everywhere, and the last for the year was on the 21st. In the Násik District there were 2 fatal cases—1 in the Sinnar and 1 in the Egatpurá Táluka, and these were the last. In the Ahmednagar District it continued throughout the month, and there were 35 deaths, the last for the year. On the 1st it appeared for the first time at Barsi, a large town in the Sholápur District, and remained there throughout the month: there were 15 attacks and 13 deaths. In the City of Bombay there were 64 deaths and 78 attacks. On the 1st and 2nd it was in the Panvel and Salsette Tálukas of the Thána Collectorate, but from the 3rd to the 23rd no fresh cases were reported: on the 24th it appeared at the village of Máhim. The attacks and deaths during the month were 92 and 50. On the 1st it was in the town of Surat, on the 2nd in Khergaon, a village in the Chikli Táluka, and from the 5th to 7th it was reported from 3 villages in the Jaláipur Táluka, and between the 11th and 23rd from 7 in the Bárdoli Táluka. The attacks and deaths for the month were 219 and 123. The Ahmedabad District was exempt, but there were 8 deaths in the city between the

1st and 26th the last for the year. Similarly the Kurrachee District was exempt, and the last case of the year occurred in the town of Kurrachee on the 17th, in the Shikárpur District it continued throughout the month, and out of 197 cases there were 95 which were fatal. For the month the total of attacks and deaths was 725 and 401, and the percentage of the latter to the former was 55·30: their percentage to deaths from all causes was 1·14.

October. 17. On the 1st October cholera was still present in the town of Bársi, and on that day there was 1 death. On the 10th and 21st it was reported from a village in the Bársi Táluka, and from 1 in the Madha Táluka; but by the 24th it had died out and there was no re-appearance during the year. In the Poona Collectorate there had been no cases for 3 months, but on the 28th five occurred, and 2 of them were fatal at Bhigwan, a village in the Indápur Táluka. In the Kolába District it re-appeared on the 8th after 7 months' absence. On that day a case was reported from Thull, a village in the A'libág Táluka, and within a fortnight it spread to 5 other villages. It was confined to this one táluka, but the attacks and deaths were 111 and 72. There were 55 cases in the City of Bombay, and 41 ended fatally. In the Thána District it was present throughout the month in 3 villages of the Panvel and Salsette Tálukas, and there were 81 attacks and 38 deaths. In the Surat Collectorate the severity continued unabated in 6 tálukas, and the attacks and deaths were 396 and 195. In the Shikárpur District there was also an increase, and there the attacks and deaths were 271 and 184. The total of attacks and deaths for the month was 933 and 541, and the percentage of the latter to the former was 57·99: their percentage to deaths from all causes was 1·43.

November. 18. On the 1st November there was cholera at Talevadi, a village in the A'libág Táluka of the Kolába Collectorate. On the 3rd it appeared in the neighbouring village of Nawakhar, but there were no fresh cases up to the 19th, on the 20th, however, 3 other villages were attacked, and a fourth on the 24th. In these 6 villages there were 57 cases, and 40 of them ended fatally, but no other táluka was affected. In the City of Bombay there were 10 deaths. In the Thána District there was cholera on the 1st at a village in the Panvel Táluka, but for 10 days there were no fresh attacks. On the 11th a case was reported from a neighbouring village and on the 17th it appeared in 2 villages, 1 in the Panvel and 1 in the Salsette Táluka. On the 21st, 24th, and 26th three others were attacked, all in the Panvel Táluka. In the Surat Collectorate there was cholera in 2 villages of the Bardoli Táluka, in 1 of the Chorasi Táluka, and in the town of Bulsar. During the second and third weeks of the month it appeared in another village of the Bardoli Táluka, and in 1 of the Chikli Táluka. In these villages and in the town of Bulsar it continued for 28 days, and the attacks and deaths were 87 and 25: they were the last for the year. In the Shikárpur District there was a case on the 3rd in the Nasirabad Táluka, and 1 on the 8th in the Lárkhána Táluka, and in these two there were 50 cases and 33 deaths between the 3rd and 22nd: they were the last for the year. There were 342 attacks and 183 deaths during November, and the percentage of the latter to the former was 53·51: their percentage to the deaths from all causes was 0·45.

December. 19. In December 20 out of our 24 Districts were free from cholera. It appeared though somewhat severely in the City of Poona, and between the 24th and 31st there were 136 attacks and 94 deaths. On the 28th there was a fatal case at Parvati, a suburb on the south, but with the exception of these 2 spots the whole of the Deccan was exempt. In the Kolába Collectorate it remained in the A'libág Táluka, and there were 39 attacks and 25 deaths. In the City of Bombay there were 4 deaths and only 5 cases. In the Thána District it continued throughout the month, and there were 75 attacks and 50 deaths. For December the attacks and deaths were 255 and 173, and the percentage of the latter to the former was 67·84: their percentage to deaths from all causes was 0·49.

20. The details here given month by month will be found in the subjoined table, which shows for each month the attacks and deaths from cholera, and the total of deaths from all causes: it also gives the ratio per 1,000 of cholera deaths to attacks, and to total deaths:—

Months.	Number of attacks by Cholera.	Number of Deaths from		Percentage of Cholera Deaths to	
		Cholera.	All causes.	Attacks.	Deaths from all causes.
Jauuary	117	78	34,942	66·66	0·02
February...	21	18	28,103	85·71	0·06
March	31	21	26,935	67·74	0·08
April	134	64	25,943	47·76	0·23
May	1,928	1,176	28,029	61·05	4·20
June	4,162	2,684	27,585	64·49	9·73
July	1,971	1,088	31,433	55·20	3·46
August	902	510	35,513	56·54	1·44
September	725	401	35,293	55·30	1·14
October	933	541	37,913	57·99	1·43
November	342	183	40,265	53·51	0·45
December	255	173	35,588	67·84	0·49
Total ...	11,521	6,937	387,542	60·21	1·79

Cholera diagram.

21. In the diagram on the opposite page there is shown the monthly cholera mortality for 1879, and for contrast there is the mean for 13 years from 1866 to 1878, both years inclusive.

Daily mortality.

22. During the cold season of 121 days there were 290 deaths, or 2·4 per day; whilst last year they were 3,025, or 25 per day. In the 61 days of the hot and dry season there were 1,240, or 20·3 per day, against 16,379, or 269 per day in 1878. For the 122 days of the rainy season there were 4,683, or 38·4 per day; last year they were 26,651, or 219 per day. For the hot and moist season there were 724, or 11·9 against 688 or 11 per day. For the Presidency generally the mean daily mortality for all seasons, and from all causes was 1,062, and of this daily number 19 were from cholera. In 1878 the daily mortality was 1,460, and the daily deaths from cholera were 128.

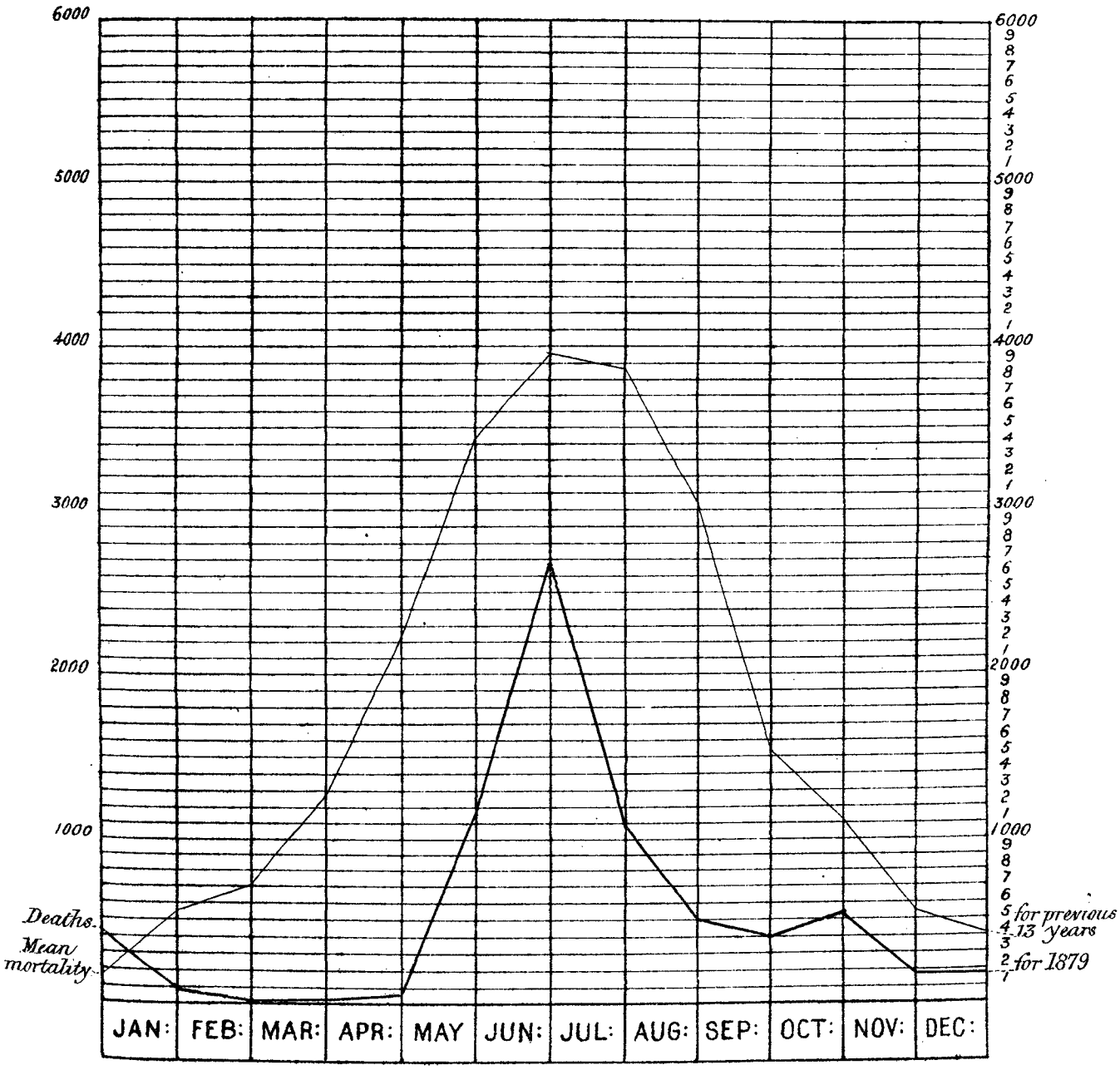
Mortality and Ratios for the Presidency generally.

23. Out of our 285 Registration Circles 116 were affected, and the total mortality was 6,937. These deaths were distributed over 18 Districts and 917 units of Registration. Of the 6,937 deaths, 4,007 were of males, and 2,930 were of females, so for every 1,000 males who died there died 731 females. The ratio per 1,000 of cholera deaths to the population of the Presidency was 0·43 : of males dying to males living it was 0·47, and of females dying to females living it was 0·38. Last year these ratios were respectively 2·96 and 2·82. The following table shows the Registrations Circles affected during the year, and it will be seen, that out of 223 rural circles and 55 town circles, 92 and 24 were affected. There was no cholera in the Civil Cantonments, it was present in 893 villages :—

Divisions.	Numbers.	Districts.	Total number of Registration Circles and their Collective Population.					Number of Circles and their Population affected by Cholera.					Percentage of affected Population to total Population.
			Tálukas or R. C.	Towns or T. C.	Cantonments or Ct. C.	Villages.	Population.	Tálukas or R. C.	Towns or T. C.	Cantonments or Ct. C.	Villages.	Population.	
North Deccan.	1	Khándesh	22	4	..	2,625	1,028,642	7	2	..	14	50,250	4·88
	2	Nasik	12	2	2	1,629	734,386	4	1	..	10	35,619	4·85
	3	Ahmednagar	11	2	1	1,342	773,938	8	2	..	27	76,136	9·84
	4	Poona	8	2	1	1,184	907,235	2	1	..	2	92,939	10·24
South Deccan.	5	Sholápur..	7	3	..	716	718,034	2	1	..	2	19,892	2·77
	6	Sátára	12	3	..	1,352	1,061,002	..	..	..	..	..	..
	7	Belgaum	7	3	1	1,085	938,750	..	..	..	..	..	..
	8	Dhárwár	14	4	..	1,413	988,037	..	..	..	..	..	..
	9	Kaládgi	8	1	* 1	1,201	816,037	..	..	..	..	..	..
Konkan.	10	Kánára	11	2	..	972	398,406	..	..	..	..	..	..
	11	Ratnágiri	8	2	..	1,249	1,019,136	1	..	..	..	..	..
	12	Kolába	6	2	..	965	350,405	2	1	..	4	4,099	0·40
	13	Bombay City	..	1	..	..	644,405	..	1	..	18	24,251	6·92
	14	Thána	11	3	..	2,129	847,424	6	1	..	..	644,405	100·00
Gujarát.	15	Surat	8	2	..	778	607,087	7	2	..	74	149,119	17·59
	16	Broach	6	2	..	405	350,322	2	1	..	44	171,815	28·32
	17	Kaira	7	4	..	585	782,733	4	2	..	2	38,903	11·10
	18	Panch Mahals	5	2	..	663	240,743	..	..	..	11	64,732	8·27
	19	Ahmedabad	7	4	1	881	829,637	5	3	..	..	..	..
Sind.	20	Kurrachee	13	1	..	3,328	423,495	12	1	..	41	229,929	27·71
	21	Hyderabad	13	1	..	5,967	721,947	12	1	..	176	117,274	27·70
	22	Thar and Párkar ..	7	1	..	1,585	180,761	1	..	..	220	87,721	12·15
	23	Shikárpur	17	3	..	4,638	776,227	14	3	..	13	* 4,255	2·35
	24	Upper Sind Frontier ..	3	*1	..	1,015	89,985	3	*1	..	227	141,850	18·27
										..	8	5,885	6·54
			223	55	7	37,697	16,228,774	92	24	..	893	1,959,074	12·07

* This is a Town and Contonment Circle.

Diagram shewing for the Bombay Presidency the mortality from Cholera for 1879 and the mean mortality for the previous 13 years.



Lithographed. Govt Photozinco Office, Poona 1880

Mortality by Divisions.

24. It has been said that the whole of the Southern Deccan was free from cholera, and in the 5 Collectorates which make up the Northern Deccan the total of cholera deaths was only 578, whilst in 1878 it was 15,890. In the Konkan the deaths were 1,299, and in Gujarát 4,394: last year these numbers were 920 and 11,270. In the Panch Maháls, last year, the mortality was exceptionally heavy, but this year it was the one District in Gujarát that escaped scot-free. Sind too suffered heavily: the total for 1878 was 26, and for this year it is 4,140. On the whole, however, it has been a light year.

Mortality by Sexes.

25. The next table gives the mortality by sexes, and the ratios of deaths per 1,000 of population, with a quinquinnial mean ratio. The ratio for males exceeds that for females in the Districts of Kurrachee, Hyderabad, Shikárpur, Thar and Párkar, Bombay City, Ahmedabad, Ahmednagar, Násik, Kaira, Khándesh, Poona, and Broach. It will be seen, too, that, except for Sind, the quinquinnial mean is everywhere higher than the mean for the year.

Mortality by Districts.

26. Coming now to our Districts it will be seen, that although the visitation was light, it was very widespread, for 18 out of the 24 were affected. The maximum mortality of the year was in the Kurrachee District: it was there 1,175, a ratio of 2·77 per 1,000. In Hyderabad, Shikárpur, and the Frontier District the ratios were between 1 and 2; in Thána and Surat they were between 0·75 and 1; in Kolába and Bombay City between 0·50 and 0·75; in Thar and Parkár, Ahmedabad and Ahmednagar between 0·25 and 0·50. In Násik, Kaira, Khándesh, and Poona between 0·1 and 0·25; and in Sholapur, Ratnágiri, and Broach under 0·1 per 1,000. The Districts in which the mortality was highest are shown in sequence in the following table, and there are also shown the population, the deaths by sexes, and the death-rates as well for 1879 as for the 5 years period from 1874 to 1878 inclusive:—

Number.	Districts.	Population by Census of 1872.			Deaths from Cholera.			Ratio of Deaths per 1,000 of Population.			Mean ratio per 1,000 of previous 5 years.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	
1	Kurrachee	240,146	183,349	423,495	723	452	1,175	3·01	2·46	2·77	1·03
2	Hyderabad	397,800	324,147	721,947	850	583	1,433	2·14	1·80	1·99	..
3	Shikárpur	424,528	351,699	776,227	834	525	1,359	1·96	1·49	1·75	..
4	Upper Sind Frontier	50,463	39,522	89,985	55	44	99	1·09	1·11	1·10	..
5	Thána	439,176	408,248	847,424	384	386	770	0·87	0·94	0·91	2·92
6	Surat	304,246	302,841	607,087	242	267	509	0·80	0·88	0·83	1·57
7	Kolába	178,047	172,358	350,405	81	99	180	0·45	0·57	0·51	1·96
8	Bombay City	399,716	244,689	644,405	224	99	323	0·56	0·40	0·50	1·52
9	Thar and Párkar	103,271	77,490	180,761	47	27	74	0·46	0·35	0·41	0·13
10	Ahmedabad	438,759	390,878	829,637	148	126	274	0·33	0·32	0·33	1·65
11	Ahmednagar	395,336	378,602	773,938	114	72	186	0·30	0·20	0·24	2·72
12	Násik	376,851	357,535	734,386	70	64	134	0·20	0·18	0·19	1·08
13	Kaira	419,142	363,591	782,733	74	55	129	0·18	0·15	0·16	1·32
14	Khándesh	530,610	498,032	1,028,642	74	62	136	0·13	0·12	0·13	1·85
15	Poona	466,757	440,478	907,235	63	37	100	0·13	0·09	0·11	2·78
16	Sholápur	369,272	348,762	718,034	12	10	22	0·03	0·03	0·03	2·81
17	Ratnágiri	491,116	526,020	1,019,136	7	19	26	0·01	0·03	0·03	0·94
18	Broach	182,511	167,811	350,322	5	3	8	0·03	0·01	0·02	1·66

Khándesh.

27. Khándesh was free from Cholera until the 6th July, and on that date the first case was reported from Erandol, a village of 11,869 inhabitants in the Erandol Táluka, and between the 6th and 31st there were 9 deaths; on the 13th it was in the town of Dhulia; on the 15th in the Chopda Táluka; on the 21st in the Shirpur Táluka; and on the 27th in the Bhadgaon Táluka. For July there were 118 attacks and 40 deaths. During August the disease remained in the 4 tálukas already affected, and appeared in those of Dhulia and Chálisgaon, and in the town of Chopda;

but it disappeared from the town of Dhulia. The attacks and deaths for August were 189 and 86. In September it disappeared from all the places named except the Chálisgaon Táluka, and it appeared in the Páchora Táluka. The last case of the year occurred in this táluka on the 21st September at Nagar-Devláli, a village of 4,268 inhabitants: the attacks and deaths for the month were 32 and 10. The affected area included 7 out of 22 tálukas, 2 out of 4 towns, and 14 villages only out of 2,625; and the population of this area was 50,250, that of the District being 1,028,642: so their proportion to the greater number is 4·88 per cent. The attacks and deaths for the district during the year were 339 and 136. The percentage of the latter to the former was 40·12, and their ratio to the District population is 0·13 per 1,000: whilst the deaths from all causes were 18,392, those from cholera were only 136.

Násik.

28. On the 15th June the first case in the Násik District was reported from Málegaon, a town of 9,701 inhabitants in the Málegaon Táluka, and between the 15th and 30th there were 55 attacks and 26 deaths. On the 17th there were 2 fatal cases at Sangmeshvar, so the attacks and deaths for June were 57 and 28. In July it appeared in the Niphád Táluka, and in the town of Yeola, and the record for the month is 170 cases and 74 deaths. In August it left the Niphád Táluka, continued in the other places affected, and appeared in the Sinnar Táluka: the attacks and deaths for the month were 82 and 30. In September there were only 8 attacks and 2 deaths, and the last fatal case of the year occurred on the 7th at Samner, a village of 413 inhabitants in the Igatpuri Táluka. The affected area included 4 out of 12 tálukas, 1 out of 2 towns, and only 10 out of 1,629 villages; and the population of this area is 35,619, that of the District being 734,386, so their proportion to the greater number is 4·85 per cent. The attacks and deaths for the District, during the year, were 317 and 134: the percentage of the latter to the former was 42·27, and their ratio to the District population was 0·19 per 1,000. The deaths from all causes were 14,448, and those from cholera 134.

Ahmednagar.

29. In the Ahmednagar Collectorate cholera first appeared on the 20th June at Pimprinirmal, a village of 1,248 inhabitants in the Sangamner Táluka, and between the 20th and 30th there were 16 cases, and 2 of them ended fatally. On the 30th it was at Poontambe, a village in the Kopargaon Táluka, and there were 6 attacks and 4 deaths, making for the month 22 and 6. During July it continued in the Sangamner and Kopargaon Tálukas, and appeared in those of Nagar, Ankola, and Nevása: the attacks and deaths for the month were 155 and 71. In August it left the Nagar and Nevása Tálukas, but remained in the others, and appeared in the towns of Ahmednagar and Sangámner, and in the Ráhurí Táluka: the attacks and deaths for the month were 136 and 74. In September it disappeared from the Kopargaon Táluka, and the town of Sangamner, re-appeared in the Nevása Táluka, and was reported from those of Shrigonda and Shevgaon. The last case of the year was on the 30th at Make, a village of 746 inhabitants in the Nevása Táluka, and the attacks and deaths for the month were 75 and 35. The affected area included 8 out of 11 tálukas, 2 towns (there are only 2) and 27 out of 1,342 villages; and the population of this area is 76,136, that of the District being 773,938; so their proportion to the greater number is 9·84. The attacks and deaths for the District, during the year, were 388 and 186: the percentage of the latter to the former was 47·94, and their ratio to the District population is 0·24 per 1,000. The deaths from all causes were 16,564, and those from cholera were 186.

Poona.

30. On the 23rd May, a case of cholera was reported from the City of Poona, and it was followed by another, and both ended fatally. In June there were 4 more attacks and 2 deaths, and then there were no others anywhere in the District until the 28th October when 5 cases were reported from Bhigwan, a village in the Indápur Táluka. Two of these 5 were fatal, and then the District was again free until towards the end of December when there was a severe outbreak in the city. Out of 1,184 villages in the Collectorate only 2 were affected, and one of these—Parvati—is really a southern suburb of the city, so strictly speaking the affected area comprised the city, and the village of Bhigwan. The population of

this area is 92,939, that of the District being 907,235, so their proportion to the greater number is 10·24 per cent. The attacks and deaths for the year were 147 and 100 : the percentage of the latter to the former is 68·03, and their ratio to the District population is 0·11 per 1,000. The deaths from all causes were 12,593, and those from cholera were 100.

Poona City outbreak.

31. A careful record of the city outbreak has been drawn up by Mr. Nursoo Ramchandra Godbole, the Municipal Secretary, and from this I quote almost *verbatum*. Between the 20th and 28th December there were one or two cases in the jail, and amongst the civil population ; but it was not a time of year when cholera might be expected, so they were set down as diarrhœa, more especially as there had been a succession of predisposing causes to induce it. The Alandi Jatra was on the 9th, and being only 12 or 14 miles off, it always draws from Poona. Many who go have but just returned from a longer pilgrimage to Pundharpur, and all are more or less under strong religious excitement. On the first day nothing is eaten until night, and then only a very light meal : on the second day the fast is unbroken for 24 hours, except perhaps by a few raw ground-nuts, or stale sweatmeats : on the third day a meal is taken early, and nothing more until night. Each day with its day-light bathings and ceremonials, is one of toilsome exposure : the nights are passed in noisy, restless excitement, and the alternations of temperature range during the 24 hours from 60° to 90° Fahr. Following close upon the Alandi Jatra was the Mohurrum, and this lasted from the 15th to the 24th. Here again there were fasts and feasts, and the very wildest excitement, and barely had it subsided when there was the Kondunpur Jatra, on the 28th, with all its privations, and excesses. Many must have been present at all of these gatherings, and any one of them would tax the strongest constitution. The mental emotion, the physical excitement, the consequent prostration, the noon-day heat, the night cold followed by prolonged exposure during ceremonial ablutions, the protracted fasts only broken by unwholsome food ; with such predisposing causes diarrhœa was certain, and almost as certain was the transition to cholera.

Predisposing causes.

The outbreak.

32. The epidemic was chiefly in those quarters of the city supplied with Kátraj water, and this being suspected, Khadakvásla water was substituted. It was noticed that the former has become discolored and its discontinuance at the jail was followed by the disappearance of the disease, but coincident with the change of water was a change of diet. As a careful analysis of the supply showed nothing to warrant suspicion its use was everywhere resumed. Between the 20th and 29th December there were only 2 or 3 stray casualties, but on the 29th there were 36 seizures and 27 deaths, and on the 1st January 1880 they reached the maxima of 41 and 36, after the 15th there were neither attacks nor deaths amongst the higher castes, and they declined too amongst the lower. From the 28th December to the 31st January the attacks and deaths were 575 and 370. The percentage of the latter to the former was 70·41 for the higher castes and 63·10 for the lower.

Preventive measures.

33. The occasion was taken to level and remove ruinous buildings and walled enclosures, those foci of filth and nuisance. Lime-washing, fumigation, disinfection and deodorization were everywhere freely resorted to. It is noticed that the construction of the minor drains was too imperfect to admit of their being cleaned by pressure, but the main drains were flushed daily, and the main streets were daily watered with a solution of carbolic acid. Evacuations from affected houses were separately removed, and specially disposed of by burning and burying. Nearly every precaution was taken that could be taken, and prompt curative measures were adopted. A permanent improvement will be the filtration of the Kátraj water. The services of Surgeon-Major Bruce and Assistant Surgeon Vishram Ramji Ghole were of untold value : the former advised, and inspired confidence, and the latter was unremitting in his inspections, and in seeing that the instructions were faithfully carried out. For obvious reasons Mr. Nursoo Ramchundra Godbole makes no mention of his own services, but I know, that, from first to last, he was of great assistance.

Sholápur.

34. The Sholápur District had suffered so much from famine, and the people had been reduced to such extremities for food, eating anything and everything that cholera might almost have been expected, and yet there was none until the 28th August. On that day a case was reported from the Bársi Road Relief Camp, and as the main line of Railway ran close to it, and the huts were terribly overcrowded with poor famine-stricken wretches in all stages of emaciation, there was real cause for anxiety. Fortunately, however, the type was mild, and there were very few cases. On the 1st September it appeared at Bársi, a town of 18,560 inhabitants, and during the month there were 15 attacks and 13 deaths. It clung to the town during October, and appeared at Adhambe, a village in the Mádha Táluka, and also at Kategaon in the Bársi Táluka where the last case of the year occurred on the 24th, there were 14 cases during October, and 9 ended fatally. The population of the affected area was 19,892, and that of the District is 718,034, so the proportion of the former to the latter is 2·77 per cent. In 1878 the attacks and deaths were 5,091 and 3,074; whilst this year they are only 29 and 22, but the percentage of the latter to the former is 75·86, and their ratio to the District population is 0·03 per 1,000. The deaths from all causes were 23,189, and those from cholera were 22. The object was to prevent the disease being carried by rail to so important a Cantonment as Poona, and that object was happily attained.

Ratnágiri.

35. Ratnágiri was free from cholera until the 1st of June, and on that date the first case was reported from Dápoli, a village of 2,595 inhabitants, and between the 1st and 30th there were 44 attacks and 22 deaths. In July it left Dápoli, but appeared in 3 other villages in the same táluka, the attacks and deaths for the month were 7 and 4; and the last fatal case of the year occurred on the 30th July at Badirodi, a village of 339 inhabitants. The affected area included 1 out of 8 tálukas and only 4 out of 1,249 villages; and the population of this area is 4,099, that of the District being 1,019,136: so their proportion to the greater number is 0·40 per cent. The attacks and deaths for the District during the year were 51 and 26: the percentage of the latter to the former was 50·98, and their ratio to the District population was 0·03. The deaths from all causes were 27,736, and those from cholera 26.

Kolába.

36. In the Kolába District the first case of cholera was reported on the first day of the year from Ambeghur, a village of 458 inhabitants in the Pen Táluka, and between the 1st and 20th there were 44 attacks and 20 deaths. On the 29th it appeared in 2 other villages in the same táluka and there were 15 fatal cases out of 22 attacks: so the attacks and deaths for the month were 66 and 35. In February the disease remained in the same táluka and there were 8 fatal cases for the month. From March to September inclusive there was no cholera in the District, but in October it appeared in 6 villages of the A'libág Táluka, and the attacks and deaths for the month were 111 and 72 respectively. In November it remained in the same táluka and appeared in the town of A'libág, the total for the month being 57 attacks and 40 deaths. In December it remained in the places named, and the attacks and deaths for the month were 39 and 25. The last case of the year occurred at Warsoli—a village of 1879 inhabitants in the A'libág Táluka. The affected area included 2 out of 6 tálukas; 1 out of 2 towns and only 18 out of 965 villages; and the population of this area is 24,251, that of the District being 350,405: so their proportion to the greater number is 6·92 per cent. The attacks and deaths for the District during the year were 281 and 180: the percentage of the latter to the former was 64·06, and their ratio to the District population was 0·51 per mille. The deaths from all causes were 6,391, and those from cholera 180.

Bombay City.

37. In the City of Bombay cholera prevailed throughout the year, as it did in 1878, and as it almost always does every year. Taking the records for 23 years as far back as 1857, it will be seen from the subjoined table, that it was present in 266 out of the 276 months which make up that period. There was none in the December of 1867, in February and March of 1868, in February, June, November and December of

1874, in March 1875, and in February, and December of 1876: with these exceptions it was never absent:—

Table showing Cholera mortality by months, and the means, for a period of 23 years.

Years.	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	November	December.	Total.	Years.
1857 ..	459	165	306	363	249	302	157	86	32	31	18	13	2,181	1857
1858 ..	19	9	8	15	11	9	5	8	11	6	7	7	115	1858
1859 ..	9	10	9	7	69	843	329	170	41	85	131	282	1,985	1859
1860 ..	289	332	396	321	163	107	89	128	51	47	29	9	1,961	1860
1861 ..	15	68	5	4	12	18	13	10	11	34	35	466	641	1861
1862 ..	625	240	339	266	367	218	117	95	161	272	201	269	3,170	1862
1863 ..	89	50	89	161	153	161	412	240	178	181	176	319	2,209	1863
1864 ..	622	401	302	680	837	395	371	351	232	88	137	431	4,847	1864
1865 ..	363	540	522	356	624	206	116	62	31	32	22	13	2,887	1865
1866 ..	13	15	12	16	21	15	27	43	63	49	31	27	332	1866
1867 ..	11	21	12	26	5	9	5	5	7	6	4	..	111	1867
1868 ..	1	..	..	3	3	2	4	6	1	43	63	101	227	1868
1869 ..	157	93	97	91	82	41	54	47	60	26	3	3	754	1869
1870 ..	6	3	5	3	7	12	4	73	76	41	64	92	386	1870
1871 ..	68	41	37	24	15	10	3	11	13	29	8	4	263	1871
1872 ..	7	2	4	7	6	7	46	54	32	11	3	11	190	1872
1873 ..	22	13	17	12	8	7	3	1	2	3	2	2	92	1873
1874 ..	1	..	2	2	7	..	2	1	2	2	..	..	19	1874
1875 ..	1	1	..	31	67	132	279	168	43	53	38	21	834	1875
1876 ..	1	..	2	4	5	9	119	141	64	23	6	..	374	1876
1877 ..	1	61	111	185	337	704	495	337	162	42	21	54	2,510	1877
1878 ..	35	109	224	128	137	99	156	116	43	53	40	25	1,165	1878
Mean for 23 years.	128	97	114	123	145	150	127	98	59	52	47	98	1,238	Mean for 23 years.
1879 ..	27	10	13	4	29	14	33	74	64	41	10	4	323	1879

For the first quarter of 1879 the attacks and deaths were 65 and 50, for the second 65 and 47, for the third 215 and 171, and for the fourth 70 and 55: a total for the year of 415 and 323, against 1,444 and 1,165 in 1878. The percentage of deaths to attacks is 77·83, and their ratio per 1,000 of population is 0·50. The deaths from all causes were 22,294, and 323 were from cholera.

Thána.

38. The District of Thána was free from cholera until the 19th April and on that date the first case was reported from Nasale, a village of 518 inhabitants in the Bassein Táluka, and between the 1st and 30th there were 8 seizures and 5 deaths. Two days afterwards, it appeared in another village, and between the 25th and 30th 3 other villages were affected in the same táluka. There were 27 attacks and 13 deaths for the month. In May it continued in the same táluka, and the attacks and deaths for the month were 204 and 117. During June it continued in the Bassein Táluka and appeared in the Dáhánu and Salsette Tálukas. The attacks and deaths for the month were 305 and 200 (the maximum). In July it continued in the tálukas already affected, and there were 199 fresh cases and 129 deaths. In August it continued in 2 tálukas, disappeared from one (Dáhánu) and appeared in the Máhím, Bhiwándi and Panvel Tálukas and in the Town of Thána. The total of attacks during the month was 183 and of deaths 98. In September it remained in the 3 tálukas, but disappeared from Bhiwándi and Bassein and from the Town of Thána: the attacks and deaths for the month were 92 and 50 respectively. In October it left the Máhím Táluka, and the attacks and deaths were 81 and 38. In November it remained in the tálukas previously affected, and the attacks and deaths for the month were 138 and 75. In December it disappeared from the Salsette Táluka and remained in the Panvel Táluka until the end of the year, the attacks and deaths were 75 and 50. The affected area included 6 out of 11 tálukas, 1 out of 3 towns and 74 out of 2,129 villages; and the population of this area is 149,119, that of the District being 847,424: so their proportion to the greater number is 17·59 per cent. The attacks and deaths for the District during the year were 1,304 and 770: the percentage of the latter to the former was 59·05; and their ratio to the District population is 0·91 per mille. The deaths from all causes were 17,497, and those from cholera were 770.

Surat.

39. In the Surat Collectorate, the first fatal case of cholera occurred on the 16th April at Vásna, a small village of 303 inhabitants in the Olpád Táluka. There were 2 cases in the town of Surat, but neither were fatal: so there were in April 3 cases and 1 death. In May 1 case occurred in the town of Surat on the 16th, and 1 *fatal* case was reported in the Chorási Táluka. But the heaviest mortality was in 3 sea-side villages of the Bulsár Táluka. The record for the month was 165 attacks and 81 deaths. In June 1 fatal case occurred in the town of Surat. The disease continued in the Bulsár Táluka and appeared in the Jalálpur Táluka, the attacks and deaths

for the month being 69 and 30. In July it remained in the 3 tálukas already affected, and the attacks and deaths were 42 and 30 respectively. In August it left the Jalálpur Táluka, but appeared for the first time in the Bárdoli Táluka and continued in the Bulsár Táluka and in the town of Surat: the attacks and deaths for the month were 26 and 24. In September it continued in the town of Surat and in the affected tálukas, re-appeared in 2 others—Chorási and Jalálpur, and appeared for the first time in the Chikhli Táluka. But the highest mortality was in the Bárdoli Táluka. There were for the month 219 attacks and 123 deaths. In October it remained in all the tálukás already affected, disappeared from the town of Surat and appeared in the Párdi Táluka. The attacks and deaths for the month were 396 and 195 (the maximum). In November it continued in 4 tálukas, disappeared from 2 (Jalálpur and Bulsár), and appeared in the town of Bulsár. The attacks and deaths for the month were 87 and 25. The last case of the year was on the 28th November at Khuroli, a village of 857 inhabitants in the Chikhli Táluka. The affected area included 7 out of 8 tálukas, 2 towns (there are only 2) and 44 out of 778 villages; and the population of this area is 171,815, that of the District being 607,087: so their proportion to the greater number is 28·32 per cent. The attacks and deaths for the District during the year were 1,007 and 509 respectively: the percentage of the latter to the former was 50·55, and their ratio to the District population was 0·83 per 1,000. The deaths from all causes were 17,711, and those from cholera 509.

Broach.

40. The Broach District was free from cholera until the 15th April and on that date the first fatal case was reported from Umbheta, a village of 599 inhabitants in the Hánsot Táluka. Between the 7th and 30th there were 7 cases and 3 deaths in the town of Broach; so, for the month, the attacks and deaths were 8 and 4. In May the disease left the Hánsot Táluka, but remained in the town of Broach, and the record for the month was 7 cases and 1 death. In June cholera disappeared from the town of Broach, but appeared for the first time in the Broach Táluka. The last case of the year occurred in this táluka on the 5th June at Sukkurpur, a village of 1,372 inhabitants: there were 3 fatal cases recorded during the month. The affected area included 2 out of 6 tálukas; 1 out of two towns and only 2 out of 405 villages: and the population of this area is 38,903, that for the District being 350,322; so their proportion to the greater number is 11·10 per cent. The attacks and deaths for the District during the year were 18 and 8: the percentage of the latter to the former was 44·44; and their ratio to the District population was 0·02 per 1,000. The deaths from all causes were 13,570, and those from cholera only 8.

Kaira.

41. In the Kaira District the first case of cholera was reported on the 26th April from Sitra, a village of 940 inhabitants in the Mátar Táluka, and between the 26th and 30th there were 9 cases and 2 deaths. In May it remained in this táluka and appeared in 2 villages of the Mehmedabad Táluka. The total for the month was 63 seizures and 23 deaths. In June it disappeared from the 2 tálukas previously affected, but appeared in the town of Nadiád, the attacks and deaths being 13 and 5. In July it continued in the town of Nadiád and appeared afresh in 2 tálukas—Nadiád and A'nand. The attacks and deaths for the month were 228 and 77 (the maximum). In August it remained in the A'nand Táluka and in the town of Nadiád; disappeared from the Nadiád Táluka, but appeared for the first time in the town of Kaira. The last case of the year occurred on the 18th in the town of Kaira (12,681 inhabitants), and the attacks and deaths for the month were 50 and 22. The affected area included 4 out of 7 tálukas, 2 out of 4 towns, and 11 out of 585 villages; and the population of this area is 64,732, that of the District being 782,733; so their proportion to the greater number is 8·27 per cent. The attacks and deaths for the District during the year were 363 and 129: the percentage of the latter to the former was 35·54, and their ratio to the District population was 0·16 per mille. The deaths from all causes were 29,213, and those from cholera were 129.

Ahmedabad.

42. In the Ahmedabad District, the first case of the year was on the 18th January, at Valookhud, a village of 1,812 inhabitants in the Gogha Táluka, and between the 18th and 25th there were 5 attacks and 4 deaths. It also appeared in 7 other villages in the

same táluka and in the town of Gogha, the attacks and deaths for the month being 17 and 16. In February the District was free, but towards the close of March it re-appeared in the Gogha Táluka, and appeared for the first time in the Dhandhuka Táluka. There were 13 seizures and 8 deaths during the month. In April it continued in the táluka previously affected, appeared in the City of Ahmedabad and re-appeared in the town of Gogha. The attacks and deaths for the month were 83 and 40. In May it continued in the places just named and appeared in the Daskrohi and Dholka Tálukas. The attacks and deaths were 139 and 104 (the maximum). In June it continued in the places previously affected, except the town of Gogha and appeared in the Sánand Táluka, but the attacks and deaths for the month were only 73 and 34. In July it remained in 4 tálukas, and disappeared from those of Daskrohi and Dhanduka, the record for the month being 56 seizures and 25 deaths. In August it disappeared from the Gogha and Sánand Tálukas, continued in the Dholka Táluka and in the town of Ahmedabad; and appeared afresh in the town of Dholka. There were 39 fatal cases and 61 attacks. In September it disappeared from all the places affected, but lingered in the town of Ahmedabad, and here the last fatal case of the year occurred on the 26th, the population being 116,873. There were 8 fatal cases recorded for the month. The affected area included 5 out of 7 tálukas, 3 out of 4 towns, and 41 out of 881 villages, and the population of this area is 229, 929, that of the District being 829,637 : so their proportion to the greater number is 27·71 per cent. The attacks and deaths for the District during the year were 450 and 274 : the percentage of the latter to the former was 60·89, and their ratio to the District population was 0·33 per mille. The deaths from all causes were 31,243, and those from cholera 274.

Kurrachee.

43. In the Kurrachee District the first fatal case of the year was in the town of Kurrachee on the 9th May, but some doubt was expressed as to whether it was cholera: two others occurred during the month. It also appeared in the Tálukas of Kohistan, Sehwan, Kotri, Tatta, and Belo or Sujáwal. The attacks for the month were 359 and there were 219 deaths, 192 of them being in the Kotri Táluka. During June it left the Kohistan Tálukas, but appeared in those of Dadu, Manjhanda, Mirpur, Sákro, Ghorabari, Mirpur Batora, and Sháhabandar; there were 946 attacks and 607 deaths (the maximum.) In July it continued in all the tálukas affected except Kotri, and appeared in the Kurrachee Táluka: the attacks and deaths were 505 and 322. From this time there was a marked abatement, and during August it disappeared everywhere except in the táluka and town of Kurrachee: there were 35 attacks and 26 deaths. The last fatal case of the year was on the 17th September in the town of Kurrachee. The affected area included 12 out of 13 tálukas, 1 Town (there is only 1) and 176 out of 3,328 villages. The population of this area is 117,274 that of the District being 423, 495, so their proportion to the greater number is 27·70 per cent. The attacks and deaths were 1,846 and 1,175, the percentage of the latter to the former was 63·65, and their ratio to the District population is 2·77 per 1,000. The deaths from all causes were 7,327, and those from cholera were 1,175.

Hyderabad.

44. The Hyderabad District was free from cholera until the 18th May, and on that date the first case was reported from Hyderabad, a town of 35,272 inhabitants, and between the 18th and 31st there were 34 attacks and 21 deaths. On the 18th it also appeared in the Hyderabad Táluka; on the 21st in the Tando Alahyar and Moro Tálukas; on the 22nd in the Tando Bago Táluka; on the 23rd in the Mohbat Dero and Naushahro Tálukas; on the 25th in the Hála and Sakrand Tálukas; and on the 26th in the Guni and Badin Tálukas. The attacks and deaths for the month of May were 607 and 380. During June it continued in the 9 tálukas already affected appeared in those of Shahadapur and Mirpur Khas, but disappeared from those of Naushahro and Moro. The attacks and deaths for June were 1,308 and 909 (the maximum). In July it disappeared from the Tálukas of Hyderabad, Tando Bago, Tando Alahyar, Shahdádpur and Mirpur Khas, continued in the others affected and re-appeared in the Naushahro and Moro Tálukas. Up to the 31st July it was in the Guni and Mohbat Dero, and the attacks and deaths for the month were 198 and 144. The affected area included 12 out of 13 tálukas, one town (there is only one) and 220 out of 5,967 villages;

and the population of this area is 87,721, that of the District being 721,947; so their proportion to the greater number is 12·15 per cent. The attacks and deaths for the District, during the year, were 2,113 and 1,433: the percentage of the latter to the former was 67·82, and their ratio to the District population was 1·99 per mille. The deaths from all causes were 9,836, and those from cholera 1,433.

Thar and Párkar.

45. In the Thar and Párkar District, cholera first appeared on the 22nd May at Juda-Godown, a village of 170 inhabitants in the Umarkot Táluka, and between the 22nd and 28th there were 12 cases and 8 deaths. In June it appeared in 12 other villages in the same táluka, and the last case of the year occurred on the 27th at Junsijo, a small village of 50 inhabitants: the attacks and deaths for the month were 97 and 66 respectively. The affected area included 1 out of 7 tálukas and 13 out of 1,585 villages; and the population of this area is 4,255, that of the District being 180,761; so their proportion to the greater number is 2·35 per cent. The attacks and deaths for the District, during the year, were 109 and 74: the percentage of the latter to the former was 67·89 and their ratio to the District population is 0·41 per 1,000. The deaths from all causes were 1,960, and those from cholera were 74.

Shikárpur.

46. The Shikárpur District was free from cholera until the 5th May, and on that date the first case was reported from Sukkur, a town of 13,318 inhabitants, and between the 5th and 29th there were 196 attacks and 115 deaths. On the 9th the disease appeared in the Sukkur Táluka; on the 12th in the Saidapur Táluka; on the 13th in the Lárkhána Táluka; on the 14th in the Rohri Táluka; on the 15th in the Kakar Táluka and in the town of Lárkhána; on the 19th in the town of Shikárpur; on the 20th in the Labdarya Táluka; and on the 25th in the Tagar Táluka. For May there were 322 attacks and 204 deaths. In June the disease remained in 9 tálukas already affected, and appeared in those of Shikárpur, Naushahro, Ghotki, Kambar, Rato-dero, and Nasirabad; but it disappeared from the town of Lárkhána. The attacks and deaths for June were 1,093 and 673. In July it continued in 7 tálukas previously affected, disappeared from those of Rohri, Saidapur, Ghotki, Lárkhána, Rato-dero and Tagar and from the towns of Shikárpur and Sukkur; but re-appeared in the town of Lárkhána. The attacks and deaths for the month was 228 and 133. In August it disappeared from all the places affected except the Sukkur and Nasirabad Tálukas, and re-appeared in the Lárkhána Táluka. There were 54 cases and 37 deaths in August. In September it continued in 2 tálukas, disappeared from the Sukkur Táluka; re-appeared in the Kambar and Kakar Tálukas and in the town of Sukkur; and appeared for the first time in the Mehar Táluka. The attacks and deaths during the month were 197 and 95. In October it continued in 4 tálukas, re-appeared in the Rato-dero and Labdarya Tálukas and in the town of Lárkhána, but disappeared from the Mehar Táluka and from the town of Sukkur. The attacks and deaths for the month were 271 and 184. In November it remained in the Lárkhána and Nasirabad Tálukas and disappeared from all the others. The attacks and deaths for the month were 50 and 33: the last case occurred on the 22nd November in the Nasirabad Táluka. The affected area included 14 out of 17 tálukas, 3 towns (there are only 3) and 227 out of 4,638 villages; and the population of this area is 141,850, that of the District being 776,227: so their proportion to the greater number is 18·27 per cent. The attacks and deaths were 2,215 and 1,359: the percentage of the latter to the former was 61·36; and their ratio to the District population was 1·75 per 1,000. The deaths from all causes were 7,940, and those from cholera 1,359.

Upper Sind Frontier.

47. On the 24th May, the first case of cholera in the Upper Sind Frontier District was reported from Jacobabad, a town of 5,205 inhabitants, and between the 24th and 31st, there were 8 fatal cases. In June it remained in the town of Jacobabad and appeared in the Jacobabad, Thul and Kashmore Tálukas: there were 107 seizures and 85 deaths. In July it was only in the Jacobabad Táluka and in the town; and here the last case of the year occurred on the 15th July. The attacks and deaths for the month were 14 and 6. The affected area included the 3 tálukas, and 1 town of the District and 8 out of 1,015 villages; and the population of

this area is 5,885, that of the District being 89,985: so their proportion to the greater number is 6·54 per cent. The attacks and deaths for the District, during the year, were 129 and 99: the percentage of the latter to the former was 76·74, and their ratio to the District population was 1·10 per mille. The deaths from all causes were 865, and those from cholera were 99.

Mortality in rural circles or tálukas.

48. Ninety-two out of our 223 rural circles or tálukas were more or less affected by cholera during the year. The subjoined table shows in order of precedence, those rural circles or tálukas (38 in all) in which the deaths from cholera exceeded 1 per 1,000 of population. It will be seen from this table that the disease was, for the most part, confined to 11 tálukas of Shikárpur; 7 each of Kurrachee and Hyderabad; 4 of Surat; 3 of Thána; and 1 each of Khándesh, Ahmednagar, Kolába, Ahmedabad, Thar and Párkar, and Upper Sind Frontier. The last column of this table shows the position of the táluka in the cholera map. Heading the list is the Kotri Táluka in the Kurrachee Collectorate; the ratio of deaths per 1,000 of population there was 9·14; for the Dhero Mohbat Táluka in the Hyderabad District it was 7,62; and for Nasirabad, Mirpur Battora, and Bassein in the Shikárpur, Kurrachee, and Thána Collectorates respectively, the ratios were 6·58, 6·38, and 6·34. For the Hyderabad Táluka it was 5·80, and for Guni and Belo in the Hyderabad and Kurrachee Collectorates, they were 3·84 and 3·79 respectively. In 16 tálukas the death-rate per 1,000 was between 2 and 3, and in 14, it was between 1 and 2:—

Number.	Districts.	Name of Tálukas or Rural Circles.	Population by Census of 1872.	Deaths from Cholera.		Corresponding number in the Map.
				Number.	Ratio per 1,000 of Population.	
1	Kurrachee ...	Kotri	23,643	216	9·14	74
2	Hyderabad ...	Dero Mohbat ...	30,445	232	7·62	86
3	Shikárpur ...	Nasirabad ...	33,597	221	6·58	109
4	Kurrachee ...	Mirpur Batoro ...	31,645	202	6·38	78
5	Thána	Bassein	61,089	387	6·34	39
6	Hyderabad ...	Hyderabad ...	61,009	354	5·80	82
7	Do. ...	Guni	59,971	230	3·84	83
8	Kurrachee ...	Belo or Sujáwal...	28,471	108	3·79	79
9	Do.	Sehwan	54,292	153	2·82	72
10	Upper Sind Frontier.	Jacobabad ...	24,741	69	2·79	113
11	Shikárpur ...	Nanshahro ...	48,226	134	2·78	98
12	Do. ...	Kakar	46,443	129	2·78	107
13	Kurrachee ...	Ghorabari ...	31,411	87	2·77	77
14	Hyderabad ...	Hála	78,237	191	2·44	87
15	Shikárpur ...	Saidpur ...	20,488	50	2·44	100
16	Do. ...	Shikárpur ...	35,276	82	2·32	96
17	Do. ...	Sukkur	46,905	109	2·32	97
18	Kurrachee ...	Dádú	66,350	149	2·25	71
19	Thar and Párkar..	Umarkot ...	32,948	74	2·25	95
20	Shikárpur ...	Lárkhána ...	68,399	152	2·22	102
21	Surat	Bulsár	66,892	146	2·18	48
22	Hyderabad ...	Badin	51,593	109	2·11	84
23	Kolába	Aílbág	61,474	126	2·05	32
24	Thána	Panvel	85,878	176	2·05	41
25	Kurrachee ...	Tatta	37,877	73	1·93	75
26	Hyderabad ...	Tando Bagajo ...	47,922	88	1·84	85
27	Do. ...	Tando Alahyar ...	59,746	106	1·77	88
28	Shikárpur ...	Labdarya ...	31,201	51	1·63	105
29	Do. ...	Kambar	73,329	119	1·62	103
30	Surat	Bárdoli	77,500	118	1·52	45
31	Do.	Chorási	48,435	73	1·51	44
32	Thána	Sálsette	79,025	118	1·49	40
33	Ahmedabad ...	Gogha	24,258	33	1·36	62
34	Surat	Jaláipor ...	70,112	93	1·33	46
35	Shikárpur ...	Rohri	66,451	88	1·32	99
36	Khándesh ...	Chopra	37,882	49	1·29	8
37	Ahmednagar ...	Kopárgaon ...	60,839	73	1·20	19
38	Shikárpur ...	Rato-dero ...	35,896	41	1·14	104

Mortality in towns.

49. Out of our 55 town circles 24 were affected. The collective population of the affected towns was 1,355,638, and the deaths in them were 1,068—the ratio per 1,000 being 0·79. These details are all shown in the statement appended to the cholera map, but in the following table there are shown 10 towns in which the death-rate exceeded 1 per 1,000. Of these ten, 2 were in the Shikárpur Collectorate, and 1 each in those of Násik, Ahmednagar, Poona, Kolába, Thána, Kurrachee, Hyderabad and Upper Sind Frontier. They are arranged in order of precedence and the last column facilitates reference to the cholera map. The town of Sukkur in the Shikárpur Collectorate heads the list, and the death-rate per 1,000 of population recorded here was 8·94. In the town of Kurrachee it was 3·08. In 3 towns it was between 2 and 3, and in 5 between 1 and 2:—

Number.	Districts.	Name of Towns.	Population by Census of 1872.	Deaths from Cholera.		Corresponding number in the Map.
				Number.	Ratio per 1,000 of Population.	
1	Shikárpur	Sukkur	13,318	118	8·94	111
2	Kurrachee	Kurrachee	53,526	165	3·08	81
3	Násik	Yeola	17,461	51	2·92	14
4	Upper Sind Frontier .	Jacobabad	5,205	12	2·30	116
5	Kolába	Alíbág	5,473	11	2·01	34
6	Thána	Thána	14,299	23	1·61	42
7	Shikárpur	Lárkhána	10,643	16	1·50	112
8	Hyderabad	Hyderabad... ...	35,272	42	1·19	94
9	Ahmednagar... ...	Nagar	32,841	37	1·14	23
10	Poona	Poona City... ...	90,436	97	1·07	27

Mortality in villages.

50. The affected area included 893 out of our 37,697 villages, and the population of this area is 603,436. The largest number of villages affected in a given area was 227 out of 4,638, in the Shikárpur District; 220 out of 5,967 in the Hyderabad District; and 176 out of 3,328 in the Kurrachee District. In the remaining districts the number of villages affected in each was below 100. In the Poona, Sholápur, and Broach Districts with 1,184, 716 and 405 villages respectively, there were only 2 in each which were affected. In the cold season (December, January, February and March) only 18 villages with 30,324 inhabitants were attacked; in the hot weather (April and May) there were 120 with 114,205 inhabitants; during the rains (June to September inclusive) there were 676 with 407,365 inhabitants; and in the hot and damp weather (October and November) there were 79 with 51,542 inhabitants. In the next table there are shown, by months and for each district the number of villages affected and their population:—

Cholera Map.

51. The Map at page 24 illustrates the distribution of, and mortality from, cholera in the different mortuary Registration Circles in the Presidency where cholera was more or less present during the year; and the Statement appended (pages 21 to 24 inclusive) shows the name of each district affected, the name and number of each circle, its population, the dates of first and last case, the total of cholera deaths, their ratio per 10,000 of population, the period of maximum intensity, the number of villages in each circle and the number affected.

NUMBER AND POPULATION OF VILLAGES AFFECTED BY CHOLERA IN EACH MONTH OF THE YEAR 1879.

Affected Districts.	Population by the Census of 1872.	Total number of Villages in the Districts.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Total.		Affected Districts.
			Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.	Number.	Population.		
Khándesh	1,028,742	2,625	..	..	..	..	..	..	..	..	..	..	..	..	7	15,158	6	4,636	1	4,268	..	..	..	..	..	..	14	24,062	Khándesh.
Násik	734,386	1,629	..	..	..	..	..	..	..	..	..	..	2	11,500	1	2,840	5	3,236	2	582	..	..	..	..	..	..	10	18,158	Násik.
Ahmednagar ..	773,938	1,342	..	..	..	..	..	..	..	..	..	..	2	6,136	10	13,188	6	5,295	9	8,698	..	..	..	..	..	..	27	33,317	Ahmednagar.
Poona	907,235	1,184	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1,542	..	..	1	961	2	2,503	Poona
Sholápur	718,034	716	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1,332	..	..	..	..	2	1,332	Sholápur.
Ratnágiri	1,019,136	1,249	..	..	..	..	..	..	..	..	..	..	1	2,595	3	1,504	..	..	..	..	..	..	..	..	..	..	4	4,099	Ratnágiri.
Kolába	350,405	965	3	913	1	6,514	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	4,508	6	3,280	2	3,563	18	18,778	Kolába.
Thána	847,424	2,129	..	..	..	..	..	..	5	4,102	15	21,401	16	21,693	10	13,398	14	44,158	5	18,621	3	6,162	5	4,930	1	355	74	134,820	Thána.
Surat	607,087	778	..	..	..	..	..	..	1	303	4	11,060	3	4,084	..	..	2	736	13	19,083	19	17,141	2	944	..	..	44	53,351	Surat.
Broach	350,322	405	..	..	..	..	..	..	1	599	..	..	1	1,372	..	..	..	..	..	..	..	..	..	..	..	..	2	1,971	Broach.
Kaira	782,733	585	..	..	..	..	..	..	1	940	5	6,287	..	..	..	10,396	2	9,877	..	..	..	..	..	..	..	..	11	27,500	Kaira.
Ahmedabad ..	829,637	881	8	5,065	..	..	2	12,953	4	9,988	13	25,859	7	16,008	6	10,181	1	1,077	..	..	..	..	..	..	..	..	41	82,631	Ahmedabad.
Kurrachee	423,495	3,328	..	..	..	..	..	..	..	..	5	8,729	85	37,591	86	17,428	..	..	..	..	..	..	..	..	..	..	176	63,748	Kurrachee.
Hyderabad ..	721,947	5,967	..	..	..	..	..	..	..	..	46	18,787	157	30,849	17	2,813	..	..	..	..	..	..	..	..	..	..	220	52,449	Hyderabad.
Thar and Párkar .	180,761	1,585	..	..	..	..	..	..	..	..	1	170	12	4,085	..	..	..	..	..	..	..	..	..	..	..	..	13	4,255	Thar and Párker
Shikárpur	776,227	4,633	..	..	..	..	..	..	..	..	19	5,980	106	43,470	28	10,970	7	2,235	32	5,424	33	11,404	2	299	..	..	227	79,782	Shikárpur.
Upper Sind Frontier.	89,985	1,015	..	..	..	..	..	..	..	..	..	..	8	680	..	..	..	..	..	..	..	..	..	..	..	..	8	680	Upper Sind Frontier.
Total ..	11,141,394	31,621	11	5,978	1	6,514	2	12,953	12	15,932	103	98,273	400	180,663	171	97,876	43	72,150	62	56,676	64	42,089	15	9,453	4	4,879	893	603,436	Total.

52. The next table shows the relation of attacks and deaths month by month in each District. The last column shows the percentage of to deaths attacks. It will be seen that the highest percentage (77·83) was in the City of Bombay. In the Upper Sind Frontier and Sholápur Districts the percentages were 76·74 and 75·86, respectively. The minimum (35·54) is in the Kaira Collectorate:—

Attacks and Deaths.

Divisions.	Number.	Districts.	Population by Census of 1872.	January. Attacks.	January. Deaths.	February. Attacks.	February. Deaths.	March. Attacks.	March. Deaths.	April. Attacks.	April. Deaths.	May. Attacks.	May. Deaths.	June. Attacks.	June. Deaths.	July. Attacks.	July. Deaths.	August Attacks.	August Deaths.	September. Attacks.	September. Deaths.	October. Attacks.	October. Deaths.	November. Attacks.	November. Deaths.	December. Attacks.	December. Deaths.	Total. Attacks.	Total. Deaths.	Percentage of Deaths to Attacks.
Northern Deccan.	1	Khándesh ...	1,023,642	...	...	...	...	...	...	...	...	...	...	...	...	118	40	189	86	32	10	...	...	...	...	...	...	339	136	40·12
	2	Násik ...	734,386	...	...	...	...	...	...	...	...	...	...	57	28	170	74	82	30	8	2	...	...	...	...	...	...	317	134	42·27
	3	Ahmednagar ...	773,938	...	...	...	...	...	...	...	...	...	...	22	6	155	71	136	74	75	35	...	...	...	...	...	...	388	186	47·94
	4	Poona ...	907,235	...	...	...	...	...	...	...	...	2	2	4	2	...	...	...	...	15	13	5	14	...	...	136	94	147	100	68·03
	5	Sholápur ...	718,034	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14	9	138	75	...	...	29	22	75·86
Southern Deccan.	6	Sátára ...	1,061,002	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	7	Belgaum ...	938,750	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	8	Dhárwár ...	988,037	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	9	Kaládgi ...	816,037	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Konkan.	10	Kánara ...	398,406	...	...	...	...	...	...	...	...	...	...	...	22	7	4	...	...	...	...	...	...	...	...	...	...	51	26	50·98
	11	Ratnágiri ...	1,019,136	...	...	...	...	...	...	...	...	...	...	44	...	...	...	...	...	...	...	111	72	57	40	...	...	281	180	64·06
	12	Kolába ...	350,405	66	35	8	8	...	13	4	4	40	29	21	14	51	33	86	74	78	64	55	41	10	5	39	25	415	323	77·83
	13	Bombay City ...	644,405	34	27	13	10	18	13	4	4	27	117	305	200	199	129	183	98	92	50	81	38	138	75	75	50	1,304	770	59·05
	14	Thána ...	847,424	...	...	...	...	...	...	27	13	204	117	305	200	199	129	183	98	92	50	81	38	138	75	75	50	1,304	770	59·05
Gujarát.	15	Surat ...	607,087	...	...	...	...	...	...	3	1	165	81	69	30	42	30	26	24	219	123	396	195	87	25	...	...	1,007	509	50·55
	16	Broach ...	350,322	...	...	...	...	...	...	8	4	7	1	3	3	228	77	50	22	...	...	...	...	...	...	...	...	18	8	44·44
	17	Kaira ...	782,733	...	...	...	...	...	...	9	2	63	23	13	5	228	77	50	22	...	...	...	...	...	...	...	...	363	129	35·54
	18	Panch Mahals. ...	240,743	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	19	Ahmedabad ...	829,637	17	16	...	...	13	8	83	40	139	104	73	34	56	25	61	39	8	8	...	...	...	...	...	...	450	274	60·89
Sind.	20	Kurrachee ...	423,495	...	...	...	...	...	...	...	...	359	219	946	607	505	322	35	26	1	1	...	...	...	...	...	...	1,846	1,175	63·65
	21	Hyderabad ...	721,947	...	...	...	...	...	...	...	...	607	380	1,308	909	198	144	...	...	...	...	...	...	...	...	...	...	2,113	1,433	67·82
	22	Thar and Parkar ...	180,761	...	...	...	...	...	...	...	...	12	8	97	66	...	...	54	37	197	95	271	184	50	33	...	...	109	74	67·89
	23	Shikárpur ...	776,227	...	...	...	...	...	...	...	...	322	204	1,093	673	228	133	54	37	...	...	...	...	...	...	...	...	2,215	1,359	61·36
	24	Upper Sind Frontier ...	89,985	...	...	...	...	...	...	...	...	8	8	107	85	14	6	...	...	...	...	...	...	...	...	...	...	129	99	76·74
		Total ...	16,228,774	117	78	21	18	31	21	134	64	1,928	1,176	4,162	2,684	1,971	1,088	902	510	725	401	933	541	342	183	255	173	11,521	6,937	
		Percentage of Deaths to attacks... ...		66·66		85·71		67·74		47·76		61·05		64·49		55·20		56·54		55·30		57·99		53·51		67·84		60·21		
		Percentage of Cholera deaths to all deaths		0·22		0·06		0·08		0·26		4·19		9·73		3·46		1·43		1·14		1·43		0·45		0·49		1·79		

STATEMENT appended to MAP, illustrating the Distribution, &c., of CHOLERA in the BOMBAY PRESIDENCY during the year 1879.

1	2	3	4	5	6	7	8	9		10	11	
Districts.	Number of Circles as shown in the Map.	Name of Circle.	Population of Circle.	Date of first case of Cholera in the Circle during the year.	Date of last case of Cholera in the Circle during the year.	Total Deaths from Cholera in the Circle during the year.	Ratio per 10,000.	Period of Maximum intensity of the Disease.		Number of Villages in each of the Rural Circles.	Number of those	
								From	To		Affected by Cholera.	Not effected by Cholera.
Khándesh	1	Dhulia ... R.C.	54,440	4th Aug. 1879.	22nd Aug. 1879.	9	1·65	August 1879.	August 1879.	189	1	188
	2	Erandol ... „	76,689	6th July „	14th „ „	12	1·56	July „	July „	229	1	228
	3	Páchora ... „	54,313	1st Sep. „	21st Sept. „	8	1·47	September „	September „	228	1	224
	4	Bhadgaon ... „	30,567	27th July „	30th Aug. „	26	8·51	July „	August „		3	
	5	Chálisgaon ... „	44,568	11th Aug. „	6th Sept. „	18	4·04	August „	„ „	141	1	140
	6	Shirpur ... „	34,642	22nd July „	5th Aug. „	5	1·44	„ „	„ „	183	1	182
	7	Chopda ... „	37,882	15th „ „	31st „ „	49	12·94	„ „	„ „	146	6	140
	8	Dhulia ... T.C.	12,489	13th „ „	26th July „	4	3·20	July „	July „	...	...	...
	9	Chopda ... „	13,699	1st Aug. „	8th Aug. „	5	3·65	August „	August „	...	...	...
Násik ...	10	Sinnar ... R.C.	64,872	1st Aug. „	1st Sept. „	25	3·85	„ „	„ „	103	5	98
	11	Igatpuri ... „	57,735	1st Sept. „	7th „ „	1	0·18	September „	September „	130	1	129
	12	Niphád ... „	86,017	18th July „	31st July „	12	1·39	July „	July „	122	1	121
	13	Malegaon ... „	62,716	15th June „	25th Aug. „	45	7·18	June „	„ „	153	3	150
	14	Yeola ... T.C.	17,461	2nd July „	3rd „ „	51	29·21	July „	„ „	...	...	...
Ahmednagar.	15	Nagar ... R.C.	73,064	15th July „	31st July „	14	1·91	„ „	„ „	116	2	114
	16	Ankola ... „	60,591	14th „ „	7th Sept. „	5	0·82	„ „	„ „	157	3	154
	17	Shrigondo ... „	64,936	8th Sept. „	22nd „ „	5	0·77	September „	September „	86	1	85
	18	Nevása ... „	62,418	31st July „	30th „ „	7	1·12	„ „	„ „	148	2	146
	19	Kopargaon ... „	60,839	30th June „	18th Aug. „	73	12·00	July „	August „	125	7	118
	20	Sangamner ... „	58,787	20th „ „	18th Sept. „	25	4·25	„ „	July „	154	5	149
	21	Ráhuri ... „	59,093	1st Aug. „	19th „ „	15	2·54	August „	September „	118	6	112
	22	Shevgaon ... „	83,226	8th Sept. „	12th „ „	2	0·24	September „	„ „	188	1	187
	23	Ahmednagar ... T.C.	32,841	2nd Aug. „	22nd „ „	37	11·36	August „	„ „	...	...	...
	24	Sangamner ... „	9,978	17th „ „	31st „ „	3	3·01	„ „	August „	...	...	...
Poona ...	25	Indápur ... R.C.	62,392	28th October 1879	31st October 1879	2	0·32	October 1879	October 1879	86	1	85
	26	Háveli ... „	155,082	28th Dec. „	31st Dec. „	1	0·07	December „	December „	237	1	236
	27	Poona City ... T.C.	90,436	23rd May „	31st „ „	97	10·73	„ „	„ „	...	...	...

1	2	3	4	5	6	7	8	9		10	11	
								Period of Maximum intensity of the Disease.			Number of those	
Districts.	Number of Circles as shown in the Map	Name of Circle.	Population of Circle.	Date of first case of Cholera in the Circle during the year.	Date of last case of Cholera in the Circle during the year.	Total Deaths from Cholera in the Circle during the year	Ratio per 10,000.	From	To	Number of Villages in each of the Rural Circles.	Affected by Cholera.	Not affected by Cholera.
Sholápur ...	28	Bársi ... R.C.	112,293	21st Oct. 1879.	24th Oct. 1879.	5	0·45	October 1879.	October 1879.	123	1	122
	29	Mádha ... „	103,981	10th „ „	11th „ „	3	0·29	„ „	„ „	90	1	89
	30	Bársi ... T.C.	18,560	1st Sep. „	2nd „ „	14	7·54	September „	September „	...	...	...
Ratnágiri ...	31	Dápoli ... R.C.	143,137	1st June „	30th July „	26	1·82	June „	June „	247	4	243
Kolába ...	32	A'libág ... R.C.	61,474	8th October „	31st Dec. „	126	20·49	October „	October „	208	14	194
	33	Pen ... „	43,962	1st January „	22nd Feb. „	43	9·78	January „	January „	150	4	146
	34	A'libág ... T.C.	5,473	24th Nov. „	9th Dec. „	11	20·09	November „	November „	...	...	...
Bombay City.	35	Bombay City ... T.C.	644,405	3rd January „	31st „ „	323	5·01	August „	September „	...	...	...
Thána ...	36	Dahanu ... R.C.	110,423	14th June „	14th July „	18	1·63	June „	June „	213	1	212
	37	Máhím ... „	71,974	5th August „	30th Sep. „	34	4·72	August „	August „	193	4	189
	38	Bhiwndi ... „	74,267	1st „ „	31st August „	14	1·89	„ „	„ „	201	4	197
	39	Bassein ... „	61,089	19th April „	17th „ „	387	63·35	May „	June „	92	40	52
	40	Salsette ... „	79,025	16th June „	30th Nov. „	118	14·93	July „	September „	140	15	125
	41	Panvel ... „	85,878	27th August „	31st Dec. „	176	20·49	November „	December „	277	~~10~~	267
	42	Thána ... T.C.	14,299	1st „ „	31st August „	23	16·09	August „	August „	...	...	...
Surat ...	43	Olpád ... R.C.	66,256	16th April „	16th April „	1	0·15	April „	April „	139	1	138
	44	Chorasi ... „	48,435	29th May „	4th Nov. „	73	15·07	October „	October „	78	5	73
	45	Bardoli ... „	77,500	24th August „	15th „ „	118	15·23	September „	„ „	138	17	121
	46	Jalálpor ... „	70,112	24th June „	21st October „	93	13·26	„ „	September „	95	8	87
	47	Chikhli ... „	59,312	2nd Sep. „	28th Nov. „	29	4·89	October „	November „	63	2	61
	48	Balsar ... „	66,892	24th May „	31st October „	146	21·82	May „	May „	96	7	89
	49	Pardi ... „	51,749	26th October „	6th Nov. „	14	2·75	October „	October „	81	4	77
	50	Surat ... T.C.	107,149	22nd June „	15th Sep. „	33	3·08	August „	September „	...	...	...
	51	Bulsar ... „	11,315	1st Nov. „	8th Nov. „	2	1·77	November „	November „	...	...	...

Broach ...	52	Broach ...	R.C.	73,359	5th June	„	5th June	„	3	0·41	June	„	June	„	101	1	100
	53	Hansot ...	„	26,656	15th April	„	15th April	„	1	0·40	April	„	April	„	47	1	46
	54	Broach ...	T.C.	36,932	7th „	„	31st May	„	4	1·08	„	„	„	„	...	...	...
Kaira ...	55	Mehmadabad ...	R.C.	73,073	2nd May	„	30th May	„	19	2·60	May	„	May	„	59	2	57
	56	Nádiád ...	„	126,932	14th July	„	24th July	„	8	0·63	July	„	July	„	92	2	90
	57	A'nand ...	„	149,952	23rd „	„	15th August	„	22	1·47	„	„	August	„	74	3	71
	58	Mátar ...	„	78,673	26th April	„	25th May	„	6	0·76	April	„	May	„	81	2	79
	59	Kaira ...	T.C.	12,681	2nd August	„	18th August	„	3	2·37	August	„	August	„	...	...	...
	60	Nadiád ...	„	24,551	11th June	„	14th „	„	71	28·92	July	„	July	„	...	...	...
Ahmedabad	61	Daskroi ...	R.C.	130,610	23rd May	„	2nd June	„	25	1·91	May	„	May	„	140	9	131
	62	Gogha ...	„	24,258	18th January	„	5th July	„	33	13·60	January	„	January	„	64	12	52
	63	Dhandhuka ...	„	124,860	30th March	„	30th June	„	111	8·89	May	„	May	„	156	7	149
	64	Sánand ...	„	73,229	6th June	„	22nd July	„	20	2·73	June	„	June	„	85	5	80
	65	Dholka ...	„	92,521	28th May	„	15th August	„	54	5·84	July	„	August	„	118	8	110
	66	Ahmedabad ...	T.C.	116,873	20th April	„	26th Sep.	„	18	1·54	August	„	September	„	...	...	...
	67	Gogha ...	„	9,571	23rd January	„	23rd May	„	9	9·40	April	„	April	„	...	...	...
	68	Dholka ...	„	20,854	1st August	„	15th August	„	4	1·92	August	„	August	„	...	...	...
Kurrachee	69	Kurrachee ...	R.C.	5,631	16th July	„	12th „	„	5	8·88	July	„	August	„	133	3	130
	70	Kohistan ...	„	5,681	18th May	„	23rd May	„	4	7·04	May	„	May	„	63	1	62
	71	Dádu ...	„	66,350	16th June	„	17th July	„	149	22·46	June	„	July	„	648	21	627
	72	Sehwan ...	„	54,292	28th May	„	17th „	„	153	28·18	„	„	June	„	311	20	291
	73	Mánjhand ...	„	18,551	22nd June	„	17th „	„	4	2·16	„	„	July	„	95	4	91
	74	Kotri ...	„	23,643	14th May	„	18th June	„	216	91·36	May	„	May	„	166	3	163
	75	Tatta ...	„	37,877	27th „	„	13th July	„	73	19·27	June	„	June	„	284	10	274
	76	Mirpur Sákro...	„	22,646	15th June	„	19th „	„	4	1·77	„	„	July	„	263	2	261
	77	Ghorabári ...	„	31,411	2nd „	„	19th „	„	87	27·70	„	„	June	„	185	23	262
	78	Mirpur Batoro...	„	31,645	3rd „	„	28th „	„	202	63·83	„	„	„	„	390	48	342
	79	Balo or Sujáwal	„	28,471	25th May	„	27th „	„	108	37·93	„	„	July	„	246	38	208
	80	Sháhbandar ...	„	21,046	23rd June	„	12th „	„	5	2·38	July	„	„	„	272	3	269
	81	Kurrachee ...	T.C.	53,526	9th May	„	17th Sep.	„	165	30·83	June	„	„	„	...	...	...
Hyderabad	82	Hyderabad ..	R.C.	61,009	18th May	„	23rd June	„	354	58·02	May	„	June	„	556	57	499
	83	Guni ...	„	59,971	26th „	„	31st July	„	230	38·35	June	„	„	„	740	24	716
	84	Badin ...	„	51,593	26th „	„	1st „	„	109	21·13	„	„	„	„	532	31	501
	85	Tando Bagejo...	„	47,922	22nd „	„	28th June.	„	88	18·36	May	„	„	„	495	16	479
	86	Dero Mohbat ...	„	30,445	23rd „	„	31st July	„	232	76·20	June	„	„	„	234	35	199
	87	Hála ...	„	78,237	25th „	„	4th „	„	191	24·41	„	„	„	„	514	19	495
	88	Tando Alahyar	„	59,746	21st „	„	18th June	„	106	17·74	„	„	„	„	477	11	466
	89	Shahdádpur ...	„	55,707	8th June	„	29th „	„	6	1·08	„	„	„	„	380	4	376
	90	Mirpur Khás ...	„	22,449	23rd „	„	25th „	„	4	1·78	„	„	„	„	233	1	232
	91	Naushahro ...	„	72,711	23rd May	„	22nd July	„	13	1·78	July	„	July	„	594	4	590
	92	Moro ...	„	45,551	21st „	„	14th „	„	6	1·32	May	„	May	„	335	5	330
	93	Sakrand ...	„	53,566	25th „	„	11th „	„	52	9·71	June	„	June	„	534	13	521
	94	Hyderabad ...	T.C.	35,272	18th „	„	11th „	„	42	11·90	May	„	„	„	...	...	...

1	2	3	4	5	6	7	8	9		10	11	
Districts.	Number of Circles as shown in the Map.	Name of Circle.	Population of Circle.	Date of first case of Cholera in the Circle during the year.	Date of last case of Cholera in the Circle during the year.	Total Deaths from Cholera in the Circle during the year.	Ratio per 10,000	Period of Maximum Intensity of the Disease.		Number of Villages in each of the Rural Circles.	Number of those	
								From	To		Affected by Cholera.	Not effected by Cholera.
Thar & Párkar	95	Umarkot ... R.C.	32,948	22nd May 1879.	27th June 1879	74	22·46	June 1879.	June 1879.	333	13	320
Shikárpur	96	Shikárpur ... R.C.	35,276	7th June „	16th July „	82	23·24	„ „	„ „	181	10	171
	97	Sukkur ... „	46,905	9th May „	25th July „	109	23·24	„ „	„ „	232	16	216
	98	Naushahro ... „	48,226	1st June „	16th „ „	134	27·79	„ „	„ „	207	13	194
	99	Rohri ... „	66,451	14th May „	11th June „	88	13·24	May „	„ „	494	9	485
	100	Saidpur ... „	20,488	12th „ „	21st „ „	50	24·40	„ „	May „	246	11	235
	101	Ghotki ... „	46,406	3rd June „	28th „ „	25	5·39	June „	June „	171	6	165
	102	Lárkhána ... „	68,399	13th May „	19th November	152	22·22	„ „	October „	525	29	496
	103	Kambar ... „	73,329	17th June „	26th October „	119	16·23	„ „	June „	508	21	487
	104	Rato-dero ... „	35,896	7th „ „	23rd „ „	41	11·42	October „	October „	185	5	180
	105	Labdarya ... „	31,201	20th May „	29th „ „	51	16·35	June „	June „	168	18	150
	106	Mehar .. „	33,242	6th September.	20th September	17	5·11	September „	September „	291	3	288
	107	Kakar ... „	46,443	15th May „	22nd October	129	27·78	June „	July „	404	38	366
	108	Tigar ... ... „	29,023	25th „ „	27th June „	4	1·37	May „	May „	250	4	246
	109	Nasírabad ... „	33,597	8th June „	22nd November	221	65·78	„ „	October „	221	44	177
	110	Shikárpur ... T.C.	38,107	19th May „	15th June „	3	0·79	„ „	June „	...	...	...
	111	Sukkur ... „	13,318	5th „ „	27th September	118	89·35	„ „	May „	...	...	...
	112	Lárkhána ... „	10,643	15th „ „	31st October „	16	15·03	October „	October „	...	...	...
Upper Sind Frontier.	113	Jacobabad ... R.C.	24,741	1st June „	15th July „	69	27·89	June „	June „	291	4	287
	114	Thul .. ... „	34,807	15th „ „	15th June „	1	0·26	„ „	„ „	419	1	418
	115	Kashmor ... „	25,232	9th „ „	20th „ „	17	6·74	„ „	„ „	304	3	301
	116	Jacobabad T.C.& Ct.C	5,205	24th May „	15th July „	12	23·05	May „	May „	...	...	...

JACOBABAD
UPPER SIND FRONTIER
SHIKARPUR
KHAIRPUR
THAR AND PARKAR
HYDERABAD
UMARKOT
KURRACHEE
NAGAR PARKAR
RUN OF CUTCH
PALANPUR
RADHANPUR
EDAR
BHUJ
AHMEDABAD
DHRANGADRA
KAIRA
PUNCH MAHALS
GULF OF CUTCH
NAWANAGAR
RAJKOT
BARODA
Narbada River
JUNAGAD

RUN OF CUTCH
GULF OF CUTCH
NAGAR PARKAR
Deesa
PALANPUR
RADHANPUR
EDAR
SADRA
AHMEDABAD
KAIRA
BHUJ
DHRANGADRA
NAWANAGAR
RAJKOT
JUNAGAD
BARODA
PUNCH MAHALS
Narbada River
GULF OF BOMBAY
BHARUCH
SURAT
DHULIA
MALIA
THANA
BOMBAY
ALIBAG
POONA
AHMEDNAGAR
SATARA
SHOLAPUR
RATNAGIRI
SKETCH MAP
TO ILLUSTRATE THE
DISTRIBUTION OF, AND COMPARATIVE MORTALITY
from
CHOLERA
During the Year

SKETCH MAP

TO ILLUSTRATE THE

DISTRIBUTION OF, AND COMPARATIVE MORTALITY

from

CHOLERA

in the

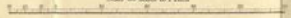
DIFFERENT CIRCLES OF MORTUARY REGISTRATION

OF THE PRESIDENCY OF BOMBAY

During the Year

1879.

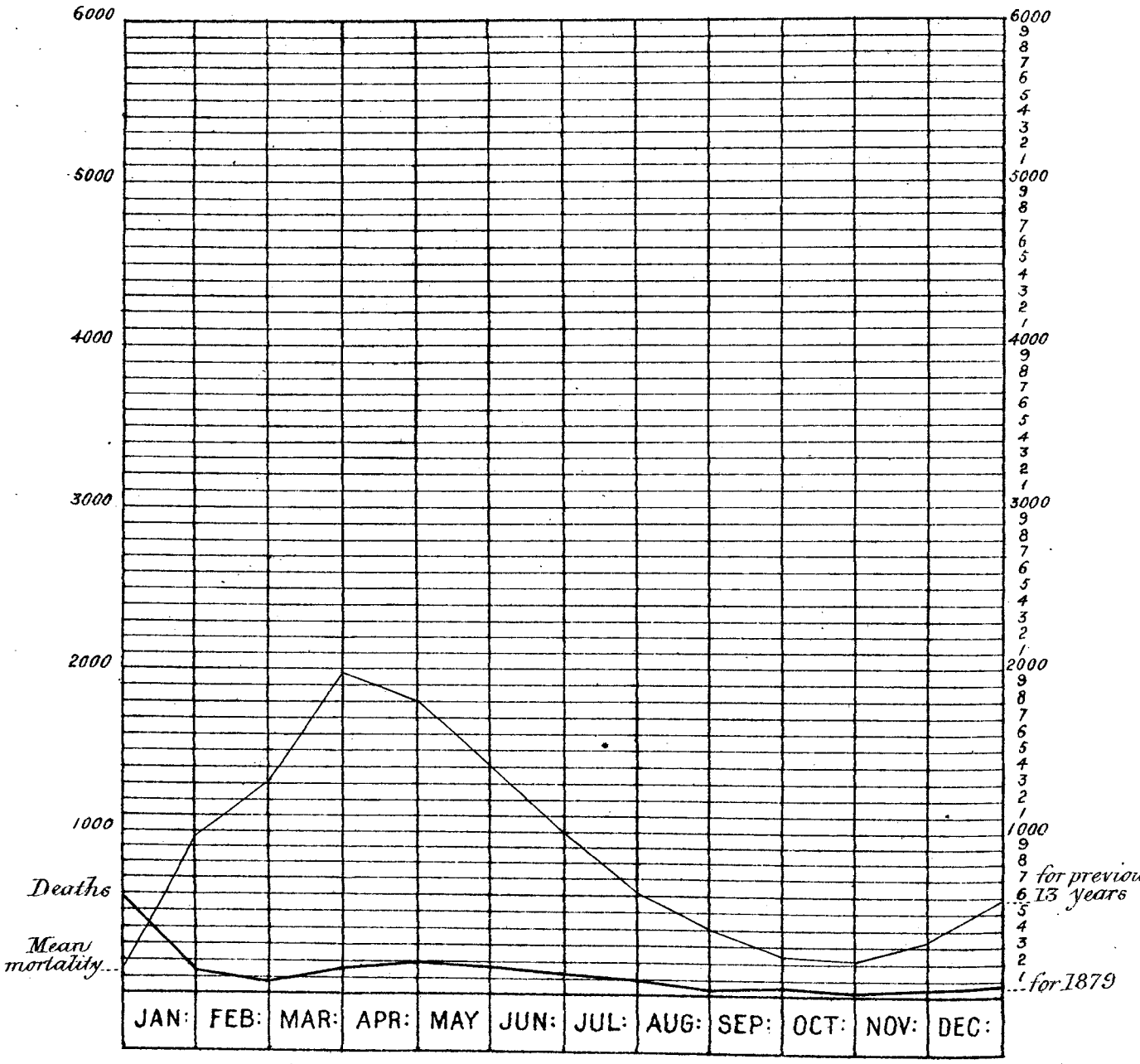
Scale 30 Miles to 1 Inch



N.B. Figures in black ink show the Number of the Registration Circle. These Numbers are given in Column 5 of the Statement appended to Map.
Figures in red ink show the ratio of deaths from Cholera per 10,000 of population.
The fractional figures indicate the date of first cases in each circle. Thus ½ means 2nd July.

Photozincographed, Civil Office, Poona, 1880.

Diagram shewing for the Bombay Presidency the mortality from Small-pox for 1879 and the mean mortality for the previous 13 years.



Lithographed, Govt Photozinco Office, Poona, 1880.

SMALL-POX.

53. In 1879 the reported deaths from small-pox were 1,156, and shown by sexes there were 591 of males, and 565 of females: the mean annual number for the last 13 years is 10,931 (see diagram on opposite page). In the subjoined table there are given, for each district, and for the last 5 years, the annual deaths from small-pox, and their several ratios per 1,000 of population, and similar values are given for 1879. Comparing those values with previous rates the only districts that can be said to have suffered are the Upper Sind Frontier and Shikárpur. In the City of Bombay there were 478 deaths, but then its quinquennial mean is 991 :—

Names of Districts.	1874.		1875.		1876.		1877.		1878.		Mean.		1879.	
	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.
1. Khándesh	133	0·13	22	0·02	1,466	1·43	5,774	5·01	240	0·23	1,527	1·36	98	0·10
2. Násik	48	0·07	39	0·05	872	1·14	3,431	4·70	53	0·07	888	1·21	5	0·01
3. Ahmednagar	22	0·03	40	0·05	350	0·43	1,978	2·56	21	0·02	482	0·62	5	0·01
4. Poona	129	0·14	186	0·20	886	0·94	1,312	1·45	40	0·04	511	0·55	24	0·03
5. Sholápur	29	0·04	19	0·03	112	0·15	1,080	1·50	33	0·04	255	0·35	1	..
6. Sátára	71	0·06	20	0·01	207	0·19	950	0·89	50	0·05	260	0·24	3	..
7. Belgaum	537	0·57	693	0·74	796	0·82	1,112	1·18	105	0·11	649	0·68	6	0·01
8. Dhárwár	485	0·49	238	0·24	408	0·40	2,642	2·67	109	0·11	776	0·78	..	..
9. Kaládgí	286	0·35	253	0·31	87	0·10	801	0·98	18	0·02	289	0·35	10	0·01
10. Kánara	284	0·71	137	0·35	28	0 07	473	1·19	68	0·17	198	0·40	8	0·04
11. Ratnágiri	321	0·31	103	0·10	1,208	1·14	1,239	1·22	93	0·10	594	0·57	24	0·02
12. Kolába	150	0·43	73	0·21	398	1·09	333	0·95	86	0·24	208	0·58	41	0·11
13. Bombay City	258	0·40	246	0·38	3,146	4·69	953	1·47	353	0·55	991	1·49	478	0·74
14. Thána	258	0·30	286	0·34	708	0·80	1,301	1·53	81	0·10	527	0·61	5	0 01
15. Surat	316	0·52	250	0·41	429	0·65	2,193	3·61	91	0·14	656	1·07	4	0·01
16. Broach	70	0·19	17	0·05	21	0·06	1,036	2·96	154	0·43	260	0·74	1	..
17. Kaira	81	0·13	600	0·77	109	0·13	125	0·16	1,061	1·35	395	0·51	5	0·01
18. Panch Mahals	6	0·03	13	0·05	53	0·21	41	0·17	209	0·86	64	0·26	2	0·01
19. Ahmedabad	388	0·47	177	0·21	217	0·25	144	0·17	1,458	1·39	417	0·49	19	0·02
20. Kurrachee	18	0·04	5	0 01	74	0·17	151	0·35	11	0·03	52	0·12	7	0·02
21. Hyderabad	1	..	7	0·01	176	0·23	286	0·40	115	0·16	117	0·16	54	0·07
22. Thar and Párkar	5	0·25	36	0·20	1	0·01	8	0·04	17	0·10	13	0 07	7	0·04
23. Shikárpur	5	0·02	1	..	66	0·08	..	..	300	0·39	74	0·11	283	0·36
24. Upper Sind Frontier ..	2	0·03	..	..	..	..	6	0·07	4	0·04	2	0·02	66	0·73
Total ..	3,903	0·24	3,461	0·21	11,817	0·70	27,369	1·69	4,475	0 28	10,205	0·62	1,156	0·07

54. The next table shows the total deaths for each month, those under 1 year, under 12, and above 12: the minimum is under 1, and the maximum between 1 and 12:—

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Total Deaths from Small-pox in each month ..	139	72	152	193	178	124	90	41	44	18	35	70	1,156
Deaths under 1 year ..	14	25	47	60	43	39	17	6	12	6	12	15	296
„ „ 12 „ ..	58	35	76	86	74	49	45	19	17	12	16	26	513
„ above 12 years ..	67	12	29	47	61	36	28	16	15	..	7	29	347

55. Tabulating the deaths by months it will be seen, that the disease generally commences, or increases in violence, with the cold weather, and abates about May. Only twice in 14 years was the highest mortality in May; four times it was in April, and eight times in March: the highest mean is also in March.

Table showing monthly Deaths from Small-pox for a period of 14 *years.*

Months.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	Mean for 13 years.	1879.
January	218	523	1,250	931	275	436	2,060	1,184	290	355	344	4,465	477	985	139
February	370	646	1,598	1,368	366	509	3,810	1,523	367	408	924	4,437	694	1,309	72
March	555	1,162	2,709	2,449	650	859	5,247	1,961	639	478	1,822	5,949	1,162	1,973	152
April	587	1,135	2,390	2,657	622	1,377	4,482	1,662	606	577	1,429	5,097	905	1,808	193
May	560	1,137	1,974	2,022	656	1,522	3,479	1,240	500	432	1,124	3,325	571	1,426	178
June	402	905	1,581	1,303	499	1,211	2,540	885	466	338	859	1,630	283	993	124
July	259	652	995	759	361	719	1,661	536	287	224	677	911	184	633	90
August	224	543	674	352	305	516	1,082	301	161	185	458	514	45	413	41
September	117	351	376	234	244	445	558	170	122	110	329	347	44	265	44
October	143	268	327	156	225	411	439	127	119	91	394	217	27	227	18
November	132	498	458	186	182	514	624	160	134	93	1,020	228	12	326	35
December	279	982	851	189	221	884	717	186	212	170	2,437	249	71	573	70
Mean	321	734	1,265	1,051	384	784	2,225	826	325	288	976	2,281	373	911	96
Total ..	3,846	8,802	15,183	12,606	4,606	9,403	26,699	9,935	3,903	3,461	11,817	27,369	4,475	10,931	1,156

Fever.

56. The deaths from fever in 1879 were 286,526, and by sexes there were 152,378 of males, and 134,148 of females. The following table shows them by districts, and their ratios per 1,000 of population. The highest mortality in any one year in any one district, during the last 14 years, was at Kaládgi in 1877—the famine year when there was the appalling total of 41,248, but taking the mean of 5 years it is highest for Dhárwár. For 1879 the maximum of 26,227 was in the Kaira District, and Ahmedabad follows with 25,807 :—

	1874.		1875.		1876.		1877.		1878.		Mean.		1879.	
	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.
1. Khándesh	11,291	10·97	18,957	18·43	15,002	14·01	14,386	13·99	23,489	22·54	16,625	13·99	14,895	14·49
2. Násik	8,501	11·57	11,167	15·21	12,008	15·71	14,899	21·68	21,360	31·07	13,587	18·93	11,709	15·94
3. Ahmednagar	9,669	12·50	12,963	16·75	13,521	16·78	19,424	25·10	20,248	26·16	15,165	19·46	12,425	16·06
4. Poona	9,731	10·72	12,018	13·25	13,342	14·13	19,753	21·77	20,612	22·71	15,091	16·52	9,599	10·57
5. Sholápur	6,403	9·65	8,721	12·15	10,039	13·43	16,941	23·59	17,023	23·70	11,826	16·50	12,899	17·95
6. Sátára	14,772	13·23	14,031	13·22	16,705	15·13	31,555	29·74	27,351	25·77	20,883	17·42	17,286	16·30
7. Belgaum	8,428	8·93	14,772	15·95	12,681	12·98	25,267	26·91	25,381	27·12	17,306	18·38	18,922	20·16
8. Dhárwár	11,165	11·30	17,818	18·03	13,515	13·14	39,915	40·40	29,082	29·43	22,299	22·40	17,802	18·02
9. Kaládgi	7,756	9·50	9,463	11·59	9,757	11·49	41,248	50·55	16,872	20·67	17,019	20·76	14,372	17·61
10. Kánara	5,934	14·89	6,265	15·73	6,452	15·56	10,662	26·76	11,542	28·97	8,171	20·38	8,867	22·25
11. Ratnágiri	6,519	6·39	6,627	6·51	7,513	7·08	8,449	8·33	10,667	10·47	7,955	7·76	19,955	19·58
12. Kolába	2,784	7·94	2,759	7·87	2,812	7·71	3,281	9·36	4,213	12·02	3,170	8·98	4,727	13·50
13. Bombay City	5,345	8·29	5,150	8·00	5,856	8·73	12,788	19·84	9,905	15·37	7,809	12·05	8,441	13·11
14. Thána	11,788	26·84	11,678	13·78	12,609	14·30	15,746	18·58	16,017	18·90	13,564	18·48	14,199	16·76
15. Surat	10,790	17·77	11,678	19·23	10,912	17·27	8,865	14·69	10,442	17·20	10,537	17·17	13,677	22·53
16. Broach	6,047	17·26	7,409	21·15	5,856	16·07	2,253	14·99	11,956	34·12	7,301	20·71	11,755	33·55
17. Káira	13,149	16·79	14,129	18·05	13,364	16·41	11,91	15·22	23,915	30·55	15,294	19·42	26,227	33·50
18. Panch Maháls	2,751	11·45	3,093	12·84	4,616	18·43	3,037	12·61	9,180	38·13	4,535	18·67	3,055	12·69
19. Ahmedabad	13,938	15·59	14,136	17·10	13,533	15·68	11,755	14·18	23,518	28·34	15,386	18·18	25,807	31·14
20. Kurrachee	3,553	8·39	3,559	8·40	4,911	11·14	5,350	13·40	5,823	13·75	4,639	10·90	4,887	11·59
21. Hyderabad	4,644	6·43	4,913	6·81	6,055	8·06	7,128	9·87	8,282	11·47	6,204	8·53	7,214	9·99
22. Thar and Párkar	970	5·37	896	4·40	1,579	8·39	22,257	12·32	3,379	18·69	1,810	9·83	1,739	9·62
23. Shikárpur	7,020	9·04	6,297	8·11	7,379	9·14	6,394	8·24	6,517	8·39	6,721	8·57	5,508	7·10
24. Upper Sind Frontier ..	769	8·54	607	6·73	816	8·71	632	7·04	602	6·69	685	7·54	568	6·31
Total ..	183,717	11·32	219,156	13·50	220,333	13·08	336,365	20·79	357,376	22·08	263,589	15·80	286,526	17·66

57. The diagram on the opposite page shows, for the Bombay Presidency, the mortality from *Fever* for 1879 and the mean mortality for the previous 13 years.

58. The next table shows the mortality by the conventional seasons for each year from 1866 to 1879 inclusive, and the totals for the last year are so placed as to contrast with the means of the preceding 13. It will be found that in 1878 there was a maximum of mortality in all the seasons. For the first 3 seasons the minimum was in 1867, and for the "hot and damp" season in 1866. For 1879 the numbers are far higher than the 13 years' mean, and the maximum and minimum are for the cold and hot and dry seasons :—

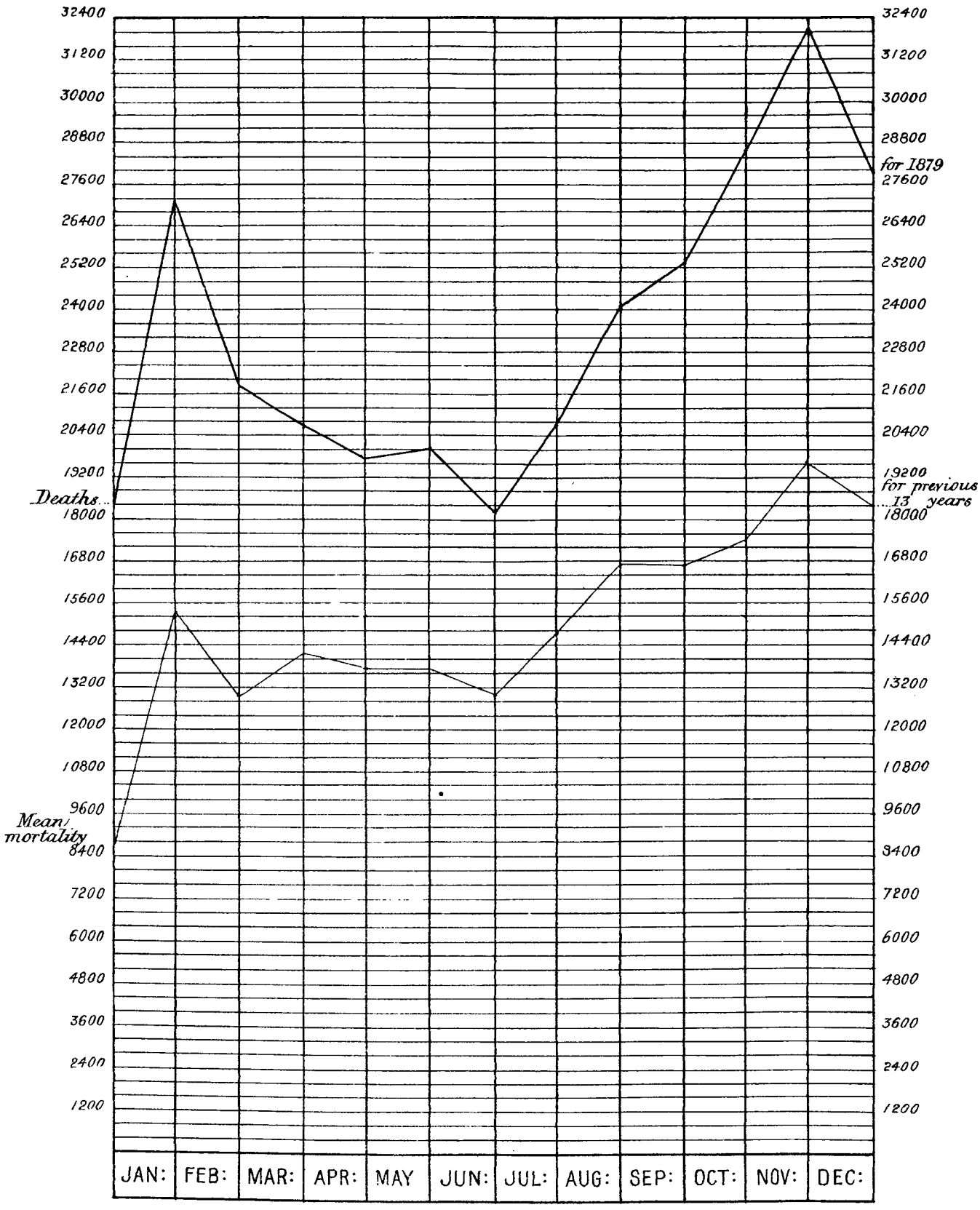
Mortality by seasons.

Years.	Cold Season (121 Days.)				Hot and Dry (61 Days.)		Rainy Season (122 Days.)				Hot and Damp (61 Days.)		Total Deaths from Fever.
	December (31).	January (31).	February (28).	March (31).	April (31).	May (31).	June (30).	July (31).	August (31).	September (30).	October (31).	November (30).	
1866	8,173	9,419	8,251	8,291	7,359	7,310	6,023	6,318	8,193	7,734	8,263	9,122	94,456
1867	8,894	7,850	6,779	7,042	6,790	6,983	6,069	6,541	7,366	7,579	8,149	9,799	89,841
1868	10,742	8,237	7,687	8,304	6,775	7,027	6,735	7,249	7,862	7,933	8,994	10,219	97,665
1869	14,283	8,860	8,074	10,056	9,986	9,512	8,450	10,548	10,868	11,133	12,164	15,184	129,123
1870	16,416	11,019	9,194	9,119	8,577	8,787	7,811	8,491	10,823	12,064	13,232	15,502	131,035
1871	16,479	13,478	12,438	14,264	13,724	12,324	12,529	13,023	14,199	13,905	15,017	16,297	167,677
1872	18,102	16,504	15,081	16,345	15,880	14,489	14,802	16,498	19,452	18,326	18,458	22,819	206,747
1873	18,385	19,828	14,002	15,257	13,730	13,371	12,438	13,577	14,995	15,550	17,672	18,896	188,201
1874	18,370	17,163	13,708	15,349	13,825	13,420	13,019	13,678	14,814	13,870	17,250	19,251	183,717
1875	20,558	17,430	14,810	16,003	17,048	17,212	17,307	19,476	20,374	19,308	18,395	21,235	219,156
1876	21,620	19,338	17,466	17,448	16,592	16,491	15,043	17,725	19,898	19,372	18,590	21,250	220,833
1877	34,749	19,607	17,686	22,258	23,580	24,936	24,046	29,322	33,720	34,221	33,753	38,937	336,865
1878	32,344	31,004	23,375	23,624	24,372	25,829	24,359	28,074	34,443	35,718	36,460	37,184	357,376
Mean	18,393	15,364	12,958	14,105	13,711	13,711	12,972	14,701	16,693	16,671	17,414	19,668	186,361
1879	27,899	27,179	21,823	20,692	19,723	20,049	18,215	20,769	24,083	25,333	28,618	32,143	286,526

ABSTRACT..

Seasons.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	Mean.	1879.
Cold	34,134	30,565	34,870	41,273	45,748	56,659	66,032	67,472	64,590	68,801	75,872	94,300	110,347	60,820	97,593
Hot and Dry.	14,669	13,773	13,802	19,498	17,364	26,048	30,369	27,601	27,245	34,260	33,083	48,566	50,201	27,422	39,772
Rainy ..	28,268	27,555	29,784	41,004	39,189	53,656	69,078	56,560	55,381	76,465	72,038	121,309	123,194	61,037	83,400
Hot and Damp ..	17,385	17,948	19,209	27,348	28,734	31,314	41,268	36,568	36,501	39,630	39,840	72,690	73,634	37,082	60,761
Total. ..	94,456	89,841	97,665	129,123	131,035	167,677	206,747	188,201	183,717	219,156	220,833	336,865	357,376	186,361	286,526

Diagram shewing for the Bombay Presidency the mortality from Fever for 1879 and the mean mortality for the previous 13 years



Lithographed, Govt Photozinco Office, Poona 1880.

Bowel Complaints.

59. The deaths from bowel complaints in 1879 were 26,349, and by sexes there were 14,919 of males, and 11,432 of females: the total is less by 14,816 than that of 1878.

60. In the following table the deaths for each District are shown together with their mean ratios per 1,000 of population. It will be seen that for the 5 years ending with 1878 the minimum mortality was in 1874, but the total for 1879 is less than that minimum by 641. For the Districts of Ratnágiri, Kurrachee, and Shikárpur the totals not only exceed the quinquennial mean, but they are higher than those for any year since 1874. For the District of Khándesh the total is less than the five years mean, and it is the same for those of Násik, Ahmednagar, Poona, Sholápur, Sátára, Belgaum, Dhárwár, Kaládgi, Kánara, Kolába, Bombay City, Thána, Kaira, Panch Maháls, and Thar and Párkar:—

Names of Districts.	1874.		1875.		1876.		1877.		1878.		Mean.		1879.	
	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.	Number of Deaths.	Ratio per 1,000.
1. Khándesh	2,420	2·85	3,027	3·82	3,070	2·87	3,037	2·36	4,235	4·73	3,457	3·35	2,451	2·38
2. Násik	1,337	1·82	1,716	2·34	1,630	2·13	1,764	2·71	2,010	2·92	1,691	2·36	1,122	1·53
3. Ahmednagar	2,029	2·62	2,641	3·41	2,493	3·10	2,884	3·73	2,157	2·78	2,440	3·13	1,481	1·91
4. Poona	1,363	1·60	1,866	2·06	1,764	1·87	2,270	2·50	1,760	1·94	1,806	1·97	987	1·03
5. Sholápur	1,302	1·92	1,365	1·90	1,793	2·40	5,016	6·99	2,230	3·11	2,341	3·26	1,490	2·07
6. Sátára	2,064	1·85	2,229	2·10	2,990	2·71	7,796	7·35	4,121	3·83	3,840	3·57	1,494	1·41
7. Belgaum	1,953	2·88	2,858	3·04	3,054	3·13	5,632	6·00	2,510	2·71	3,207	3·39	1,901	2·03
8. Dharwár	4,529	4·68	4,686	4·74	4,718	4·59	12,230	12·38	4,072	3·12	6,047	5·48	2,461	2·50
9. Kaládgi	742	0·91	983	1·20	1,402	1·65	6,102	7·48	516	0·63	1,949	2·37	464	0·57
10. Kánara	1,057	2·65	1,254	3·14	1,196	2·88	2,345	5·94	1,501	3·76	1,470	3·67	1,062	2·66
11. Ratnágiri	1,465	1·13	1,529	1·50	1,501	1·42	2,009	1·97	1,351	1·32	1,671	1·83	2,092	2·05
12. Kolába	143	0·41	193	0·55	233	0·64	312	0·89	215	0·61	219	0·62	135	0·39
13. Bombay City	1,007	2·49	2,228	3·46	1,963	2·93	3,545	5·50	3,028	4·70	2,474	3·81	2,467	3·83
14. Thána	378	0·86	462	0·54	340	0·39	502	0·59	346	0·41	406	0·54	216	0·25
15. Surat	1,245	2·05	1,573	2·59	1,253	1·98	1,286	2·12	1,492	2·45	1,370	2·23	1,500	2·47
16. Broach	261	0·74	495	1·41	411	1·18	437	1·25	927	2·64	506	1·44	881	2·51
17. Kaira	1,647	2·10	2,064	2·64	1,981	2·43	1,810	2·31	2,902	3·70	2,080	2·64	1,676	2·14
18. Panch Mahals	115	0·47	125	0·52	115	0·46	121	0·50	1,984	8·24	492	0·44	170	0·71
19. Ahmedabad	863	1·04	1,058	1·28	1,414	1·64	771	0·93	2,227	2·68	1,267	1·51	1,799	2·16
20. Kurrachee	101	0·24	47	0·11	74	0·17	46	0·11	97	0·23	73	0·17	108	0·25
21. Hyderabad	46	0·06	79	0·11	54	0·07	75	0·10	107	0·15	76	0·08	97	0·13
22. Thar and Párkar	55	0·30	56	0·31	58	0·29	51	0·24	38	0·21	52	0·25	19	0·10
23. Shikárpur	219	0·28	202	0·26	160	0·20	203	0·26	188	0·24	194	0·25	279	0·36
24. Upper Sind Frontier ..	49	0·54	14	0·15	16	0·17	13	0·14	11	0·12	21	0·23	47	0·52
Total ..	26,990	1·66	33,650	2·07	33,683	1·99	60,257	3·72	41,165	2·54	39,149	2·40	26,349	1·62

61. The next table shows the deaths in each month of the year from 1866 to 1879 inclusive, and it will be seen that, for those 14 years, the greatest number in any one month was 9,176 in September 1877. This was the unhappy famine year when the total of deaths rose to 60,257. The mean for 13 years being 30,650—the highest mean is for August, and the heaviest mortality in 1879 was in that month:—

Months.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	Mean.	1879.
January	1,363	1,372	1,316	1,754	1,591	2,454	2,351	2,241	2,062	2,378	2,370	2,777	2,660	2,045	2,473
February	1,296	1,211	1,299	1,607	1,437	2,148	2,078	1,545	1,638	1,897	2,132	2,717	2,032	1,772	1,592
March	1,417	1,339	1,451	1,931	1,552	2,582	2,123	1,885	1,892	2,147	2,331	3,270	2,238	2,012	1,626
April	1,324	1,205	1,270	2,302	1,606	2,182	2,075	1,786	1,860	2,390	2,513	3,527	2,385	2,040	1,760
May	1,464	1,325	1,316	2,396	1,554	2,413	2,305	2,140	2,011	2,456	2,662	4,201	2,718	2,228	1,885
June	1,447	1,439	1,452	2,553	1,764	2,632	2,658	1,920	2,296	2,862	2,660	5,012	3,558	2,481	1,745
July	1,722	1,571	1,934	3,596	2,225	2,909	3,697	2,428	2,701	3,751	3,337	6,799	4,001	3,129	2,397
August	2,635	1,838	2,181	3,858	3,186	2,875	4,881	2,814	3,054	4,071	4,123	8,666	6,375	3,885	2,880
September	2,584	1,763	1,907	3,299	3,351	2,646	3,898	2,543	2,476	3,584	3,521	9,176	5,495	3,558	2,674
October	2,071	1,555	1,898	2,681	2,842	2,541	3,045	2,549	2,457	2,860	2,655	6,825	3,878	2,910	2,496
November	1,678	1,398	1,714	2,151	2,463	2,365	2,523	2,265	2,235	2,644	2,681	4,373	3,070	2,428	2,156
December	1,288	1,282	1,673	1,807	2,265	2,343	2,027	2,143	2,308	2,610	2,698	2,914	2,755	2,162	2,155
Mean	1,691	1,448	1,613	2,495	2,153	2,505	2,805	2,188	22.409	2,804	2,807	5,022	3,430	2,554	2,196
Total ..	20,289	17,373	19,361	29,935	25,836	30,090	33,661	26,259	26,990	33,650	33,683	60,257	41,165	30,650	26,349

62. The following table gives the deaths by seasons, and it shows that during the rains of 1877 the mortality was almost equal to the mean *annual* mortality from 1866 to 1878, and exceeded that for 1879:—

Years.	Cold Season (121 Days.)				Hot and Dry (61 Days.)		Rainy Season (122 Days.)				Hot and Damp (61 Days.)		Total Deaths from Bowel Complaints.
	December (31).	January (31).	February (28).	March (31).	April (30).	May (31).	June (30).	July (31).	August (31).	September (30).	October (31).	November (30).	
1866	1,238	1,363	1,296	1,417	1,324	1,464	1,447	1,722	2,635	2,584	2,074	1,678	20,289
1867	1,282	1,372	1,211	1,339	1,305	1,325	1,439	1,571	1,838	1,768	1,525	1,398	17,373
1868	1,673	1,316	1,299	1,451	1,270	1,316	1,452	1,934	2,131	1,907	1,898	1,714	19,361
1869	1,807	1,754	1,607	1,931	2,302	2,396	2,553	3,596	3,858	3,299	2,681	2,151	29,935
1870	2,265	1,591	1,437	1,652	1,606	1,554	1,764	2,225	3,186	3,351	2,842	2,463	25,336
1871	2,343	2,454	2,148	2,582	2,182	2,413	2,632	2,909	2,875	2,646	2,541	2,365	30,090
1872	2,027	2,351	2,078	2,123	2,075	2,305	2,658	3,697	4,881	3,898	3,045	2,523	33,661
1873	2,143	2,241	1,545	1,885	1,786	2,140	1,920	2,428	2,814	2,543	2,549	2,265	26,259
1874	2,308	2,062	1,638	1,892	1,860	2,011	2,296	2,701	3,054	2,476	2,457	2,235	26,990
1875	2,610	2,378	1,897	2,147	2,390	2,456	2,862	3,751	4,071	3,584	2,860	2,644	33,650
1876	2,698	2,370	2,132	2,331	2,513	2,662	2,660	3,337	4,123	3,521	2,655	2,681	33,683
1877	2,914	2,777	2,717	3,270	3,527	4,201	5,012	6,799	8,666	9,176	6,825	4,373	60,257
1878	2,755	2,660	2,032	2,238	2,385	2,718	3,558	4,001	6,375	5,495	3,878	3,070	41,165
Mean	2,162	2,045	1,772	2,012	2,040	2,238	2,481	3,129	3,885	3,558	2,910	2,428	30,650
1879	2,155	2,473	1,892	1,836	1,760	1,885	1,745	2,397	2,880	2,674	2,496	2,156	26,349

ABSTRACT.

Seasons.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	Mean.	1879.
Cold	5,364	5,204	5,739	7,099	6,845	9,527	8,579	7,814	7,900	9,032	9,581	11,678	9,685	7,991	8,356
Hot and Dry ..	2,788	2,630	2,586	4,698	3,160	4,595	4,380	3,926	3,871	4,846	5,175	7,728	5,103	4,263	3,645
Rainy	8,388	6,616	7,424	13,306	10,526	11,062	15,134	9,705	10,527	14,268	13,641	29,653	19,429	13,053	9,696
Hot and Damp ..	3,749	2,923	3,612	4,832	5,305	4,906	5,568	4,814	4,692	5,504	5,336	11,198	6,948	5,338	4,652
Total ..	20,289	17,373	19,361	29,935	25,836	30,090	33,661	26,259	26,990	33,650	33,683	60,257	41,165	30,650	26,349

63. The diagram on the opposite page, shows, for the Bombay Presidency, the mortality from *Bowel Complaints* for 1879 and the mean mortality for the previous 13 years.

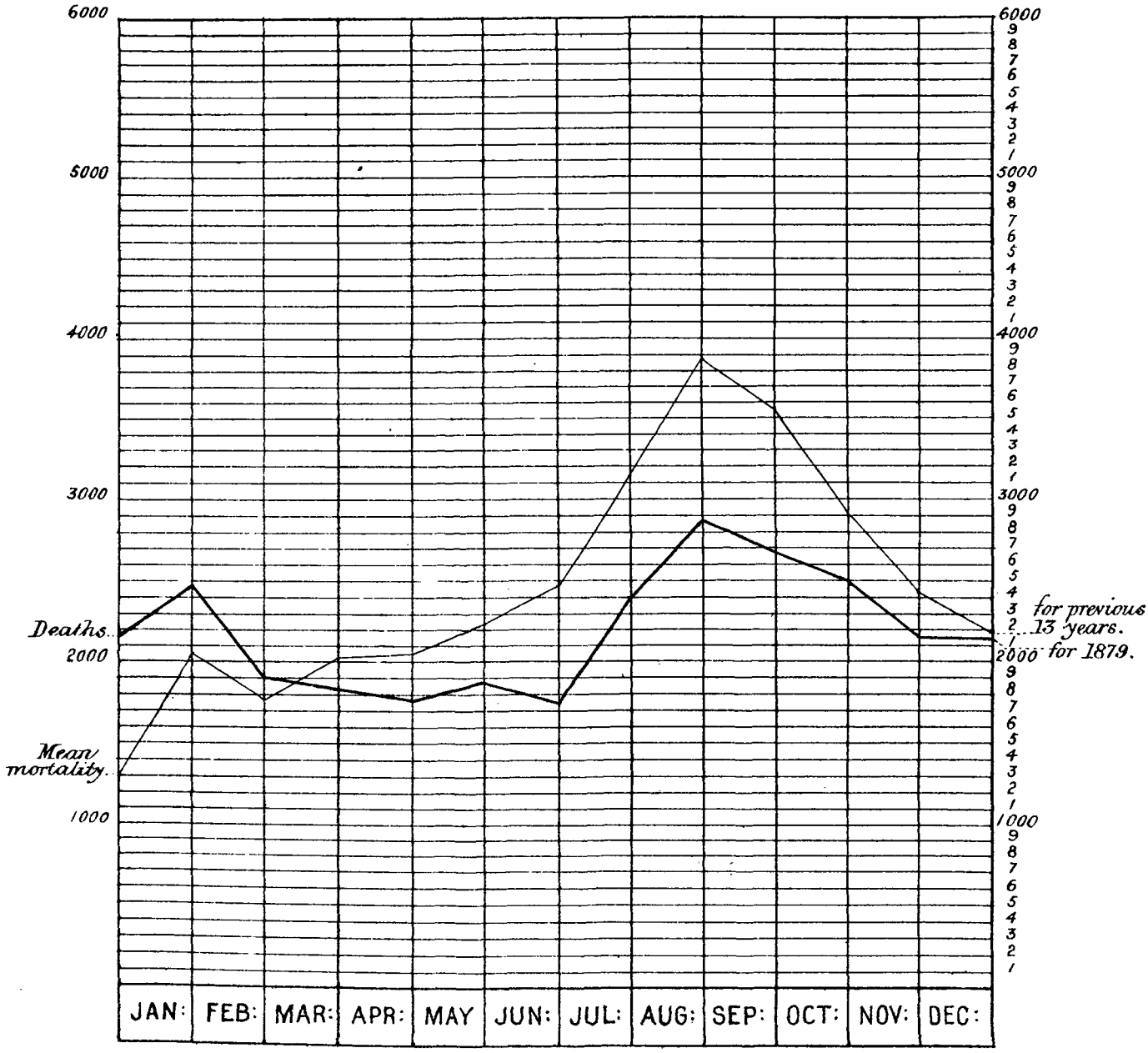
Injuries.

64. There were 7,107 deaths from injuries, and by sexes there were 3,976 of males, and 3,131 of females: their ratio per 1,000 of population was 0·44. For 1878 the total was 7,550. Of the 7,107 there were 3,739 by drowning, 1,474 from causes other than those specified, 1,044 by snake-bite, 359 from wounds, 264 by hanging, 134 from attacks by wild beasts, and 93 by poisoning. They are here shown by sexes :—

Causes.	Deaths.		
	Males.	Females.	Total.
Drowning	1,680	2,059	3,739
Poisoning	64	29	93
Hanging	191	73	264
Wounding	234	125	359
Wild beasts	78	56	134
Snake-bites	676	368	1,044
Other causes	1,053	421	1,474
Total ...	3,976	3,131	7,107

65. The next table gives the deaths from snake-bite month by month from 1874 to 1878 inclusive, and the means for that period are contrasted with the totals for 1879. The cases were most frequent during the rainy season, as they usually are :—

Diagram shewing for the Bombay Presidency the mortality from Bowel Complaints for 1879 and the mean mortality for the previous 13 years.



Lithographed, Govt Photozinco Office, Poona 1880.

Months.	Years.						
	1874.	1875.	1876.	1877.	1878.	Mean.	1879.
January	33	23	43	18	33	30	29
February	24	19	32	16	23	23	28
March	34	56	47	41	52	46	37
April	61	68	57	34	52	54	51
May	95	83	82	105	88	91	96
June	159	169	148	143	100	144	128
July	181	166	193	178	126	169	146
August	166	184	160	232	123	173	133
September	147	164	156	183	161	162	141
October	121	153	154	112	122	132	154
November	47	80	58	75	64	65	63
December	43	42	34	44	39	40	38
	93	101	97	98	82	94	87
Total ...	1,111	1,207	1,164	1,181	983	1,129	1,044

66. They are similarly shown by localities, and as usual the highest number (190) is from Hyderabad. Ratnágiri follows with 159, and Thána with 122. For Sholápur and the Upper Sind Frontier there were only 2 each :—

	1874.	1875.	1876.	1877.	1878.	Mean.	1879.
Khándesh	39	40	34	41	24	37	34
Násik	6	32	22	10	9	16	21
Ahmednagar	11	8	15	11	9	11	7
Poona	29	27	34	19	25	27	25
Sholápur	57	47	49	4	9	33	2
Sátára	9	10	10	41	34	21	49
Belgaum	39	26	35	28	31	32	23
Dhárwár	23	34	25	16	18	24	29
Kaládgi	26	23	26	13	7	19	18
Kánara	17	23	30	37	33	28	25
Ratnágiri	102	144	123	102	151	124	159
Kolába	21	26	24	19	28	23	20
Bombay City	1	8	8	3	6	5	6
Thána	111	108	90	129	103	108	122
Surat	39	45	54	48	35	44	40
Broach	34	26	27	28	14	26	16
Kaira	106	73	54	90	50	75	46
Panch Maháls	38	42	39	60	21	40	25
Ahmedabad	75	80	52	58	28	59	42
Kurrachee	64	78	94	98	64	80	71
Hyderabad	155	183	199	206	195	188	190
Thar and Párkar ...	36	49	50	57	27	44	29
Shikárpur	64	66	60	55	59	57	43
Upper Sind Frontier ...	9	9	10	8	3	8	2
Total ...	1,111	1,207	1,164	1,181	983	1,129	1,044

67. In the following table the deaths from Injuries are detailed under specified headings, and it will be seen, that of the 3,739 deaths by drowning, 718 were suicidal and 2,783 were accidental, 238 are entered as "otherwise," and this means, that when the Return was made up the suspicion attaching to these cases had not been cleared up: they could neither be pronounced suicidal nor accidental. There were no less than 2,099 deaths by drowning *in wells*, and the question is might not many of these have been prevented. Some of the wells are of course too large to be covered in; but the majority of them might be so protected, and they certainly should be. Of the 1,022 suicidal deaths 718 were by drowning, 43 by poisoning, 243 by hanging, and 18 by wounding.

Detail of Deaths by Violence in the undermentioned

| 1 | 2 | | |

Collectorates of the Bombay Presidency for the year 1879.

3						4						5									6			7			8			9		
soning.						Hanging.						Wounding.																				
Accidental.			* Otherwise.			Suicidal.			Accidental.			Suicidal.			Accidental.			Otherwise.			Wild Beasts.			Snake-Bite.			Other Causes.			Total.		
Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
...	...	...	...	1	1	1	1	2	...	1	1	1	...	1	6	1	7	8	6	14	1	4	5	22	12	34	46	35	81	145	152	297
...	...	...	...	...	...	5	1	6	1	...	1	1	...	1	1	2	3	1	1	2	9	5	14	9	12	21	20	7	27	95	85	180
...	...	...	1	1	2	1	1	2	..	...	...	..	...	..	...	1	1	...	4	4	1	...	1	6	1	7	21	20	41	89	112	201
3	...	3	...	...	...	1	...	1	1	...	1	...	...	...	2	1	3	9	3	12	1	...	1	18	7	25	28	15	43	165	143	308
1	2	3	...	...	...	2	...	2	...	...	...	...	...	...	...	...	...	1	2	3	...	...	...	...	2	2	26	5	31	116	178	294
1	...	1	3	1	4	4	3	7	...	...	...	1	...	1	...	3	3	4	7	11	4	...	4	27	22	49	51	23	74	193	241	434
...	...	...	2	...	2	29	5	34	...	...	...	3	...	3	13	5	18	13	4	17	4	4	8	21	2	23	38	14	52	222	202	424
5	1	6	...	...	...	31	8	39	...	...	...	2	...	2	13	7	20	7	15	22	...	...	...	17	12	29	32	17	49	211	234	445
...	...	...	1	...	1	36	10	46	4	3	7	1	...	1	13	9	22	10	5	15	1	1	2	5	13	18	15	8	23	191	326	517
...	...	...	1	...	1	4	...	4	...	...	...	...	...	...	2	...	2	2	...	2	5	1	6	11	14	25	53	4	57	136	58	194
...	...	...	...	1	1	11	2	13	1	1	2	...	...	...	2	...	2	...	...	...	...	...	...	97	62	159	79	24	103	357	189	546
2	...	2	...	...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11	9	20	21	9	30	66	49	115
9	2	11	1	...	1	5	2	7	2	...	2	2	...	2	6	...	6	...	...	...	...	...	...	6	...	6	151	71	222	275	123	398
...	1	1	1	...	1	8	3	11	1	...	1	1	...	1	10	2	12	10	4	14	13	4	17	81	41	122	50	18	68	252	168	420
...	...	...	...	...	...	4	1	5	...	...	...	...	...	...	2	...	2	6	3	9	7	4	11	23	17	40	56	17	73	180	136	316
...	...	...	...	...	...	1	1	2	...	...	...	...	...	...	9	...	9	4	...	4	6	19	25	3	13	16	15	8	23	67	90	157
1	...	1	...	...	...	10	8	18	1	1	2	...	...	...	5	4	9	8	8	16	5	1	6	30	16	46	92	39	131	228	160	388
...	1	1	4	...	4	4	4	8	...	...	...	1	...	1	2	...	2	9	2	11	2	7	9	12	13	25	27	11	38	73	57	130
1	...	1	...	...	...	6	4	10	...	1	1	...	...	...	5	5	10	7	4	11	...	3	3	17	25	42	25	13	38	101	112	213
...	...	...	...	...	...	2	3	5	..	1	1	1	1	2	5	2	7	3	1	4	7	...	7	50	21	71	41	11	52	200	79	279
...	...	...	...	...	...	5	2	7	...	1	1	1	...	1	5	2	7	2	1	3	9	2	11	154	36	190	108	37	145	387	129	516
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	2	...	2	1	1	2	23	6	29	4	...	4	42	16	58
...	...	...	1	1	2	7	5	12	1	...	1	1	1	2	4	2	6	3	5	8	1	...	1	32	11	43	51	13	64	170	87	257
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	1	4	...	...	...	1	...	1	1	1	2	3	2	5	15	5	20
23	7	30	15	5	20	179	64	243	12	9	21	16	2	18	109	48	157	109	75	184	78	56	134	676	368	1,044	1,053	421	1,474	3,976	3,131	7,107

the Law may not have pronounced these cases to be "Homicidal."

Other Causes.

68. The recorded deaths from causes other than those specified numbered 59,467, and by sexes there were 31,222 of males, and 28,245 of females. The total for 1878 was 75,642, so for this year there is a decrease of 16,175.

SECTION III.

GENERAL HISTORY OF VACCINATION.

Changes amongst the Supervising Officers.

The changes amongst the Supervising Officers during 1879-80 (1st April 1879 to 31st March 1880) were as follows :—

(*a*). In the Northern Deccan Registration District Dr. Nolan left the Department temporarily on account of sickness and handed over charge to Dr. Parker on 2nd May.

(*b*). In the Southern Deccan Dr. Greany, who acted for Dr. Wall, resigned the appointment, and Dr. Lewis, Civil Surgeon of Belgaum, held charge of the office from 5th August to 5th December when Dr. Clarkson was appointed to act as a Deputy Sanitary Commissioner.

(*c*). In the Konkan Dr. Channer was appointed on 2nd January 1880 to act for Dr. Cody, who is temporarily holding another appointment in the Civil Medical Department.

(*d*). In the Western Gujarát Circle Dr. Welsh, having returned from two months' privilege leave, resumed charge of his duties on 24th May from Dr. Batty, Civil Surgeon of Rájkot.

(*e*). In Sind Dr. MacRury, the permanent incumbent, was ordered on special duty beyond the Frontier, and the acting appointment was held by Dr. Parker till 24th April, when he, having been appointed to act for Dr. Nolan in the Northern Deccan, handed over charge to Dr. Adey, Civil Surgeon of Kurrachee, who held it until Dr. MacRury resumed it on 1st May.

Strength of the Department.

2. The subjoined table shows in detail the changes in the strength of the Department during the years 1879-80 and 1878-79 :—

No.	Districts and Circles.	Area in Square Miles.	Population according to Census of 1872.	Years.	Deputy Sanitary Commissioners.	Superintendents of Vaccination.	Inspectors of Sanitation and Vaccination.	Assistant Superintendents of Vaccination.	Clerks.	Number of Vaccinators. Government. Civil.	Government. Military.	Municipal.	Cantonment.	Local Funds.	Native States.	Total.	Number of Peons. Government.	Municipal.	Local Funds.	Native States.	Total.	Total Strength.
1	Northern Deccan Registration District..	38,614	4,296,187	1879-80	1	..	7	..	2	..	..	9	1	66	1	77	11	8	66	1	86	173
				1878-79	1	..	7	..	2	..	..	9	1	59	2	71	11	8	59	2	80	161
2	Southern Deccan Registration District..	28,021	5,554,665	1879-80	1	..	6	1	2	..	..	7	..	43	30	80	9	7	43	31	90	180
				1878-79	1	..	5	1	2	..	..	9	..	43	31	83	9	9	43	32	93	185
3	Konkan Registration District	15,143	2,915,587	1879-80	1	..	4	..	2	..	..	2	..	42	3	47	8	2	42	6	58	112
				1878-79	1	..	4	..	2	..	..	2	..	40	3	45	8	2	40	6	56	108
4	Presidency Circle ..	22	644,405	1879-80	..	1	..	1	2	..	..	9	..	..	..	9	..	3	..	..	3	16
				1878-79	..	1	..	1	2	..	..	9	..	..	..	9	..	3	..	..	3	16
5	Eastern Gujarát Registration District..	19,783	3,977,490	1879-80	1	..	5	..	2	..	..	7	..	35	19	61	9	7	36	16	68	137
				1878-79	1	..	5	..	2	..	..	8	..	34	19	61	9	8	35	16	68	137
6	Western Gujarát Circle	26,380	2,815,215	1879-80	..	1	..	2	2	2	..	..	..	..	41	43	8	..	..	41	49	97
				1878-79	..	1	..	2	2	2	..	..	..	..	41	43	8	..	..	41	49	97
7	Sind Registration District	49,307	2,822,765	1879-80	1	1	6	..	2	..	..	8	..	43	2	53	10	6	43	2	61	124
				1878-79	1	..	6	..	2	..	..	6	..	43	2	51	10	4	43	2	59	119
8	Baroda Circle ..	10,767	2,000,225	1879-80	..	..	3	..	..	..	..	..	..	..	31	31	..	..	..	34	34	68
				1878-79	..	..	3	..	..	..	..	..	..	..	31	31	..	..	..	34	34	68
9	Cutch Circle ..	6,500	487,305	1879-80	..	..	..	1	..	..	..	..	..	..	15	15	..	..	..	16	16	32
				1878-79	..	..	..	1	..	..	..	..	..	..	15	15	..	..	..	16	16	32
10	Aden	11	19,289	1879-80	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	1	2
				1878-79	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	1	2
	Military Stations ..	..	32,611	1879-80	..	..	..	..	..	..	3	..	..	..	..	3	..	..	..	..	..	3
				1878-79	..	..	..	..	..	..	3	..	..	..	..	3	..	..	..	..	..	3
	Total ..	1,94,543	25,065,744	1879-80	5	3	31	5	14	2	3	43	1	229	142	420	55	34	230	147	466	944
				1878-79	5	2	30	5	14	2	3	44	1	219	144	413	55	35	220	149	459	928

In the Northern Deccan there has been an increase for the year of six vaccinators and six peons, whilst in the Southern Deccan there was a decrease of 3 vaccinators and 3 peons; this is owing to the abolition of 2 vaccinators by the Guledgudd and Bijápur Municipalities in the Kaládgi Zilla, and 1 vaccinator by the Kurundvád State. The State of Jamkhandi has entertained the services of an Inspector of Sanitation and Vaccination, who exercises control over the vaccinators of that State alone. In the Konkan there is an increase of 2 vaccinators and 2 peons, who have been provided for by the Thána Local Fund Committee. In Eastern Gujarát there has been a decrease of 1 vaccinator and 1 peon, paid by the Dhandhuka Municipality; but one more has been entertained by the Ahmedabad Local Fund Committee in Petha Mahál Modása, since October last. In Sind 2 vaccinators and 2 peons have been added to those on the Municipal list by the towns of Lárkhána and Jacobabad, as a temporary measure, and a Superintendent of Vaccination for Kurrachee town has been appointed under the Kurrachee Vaccination Act (No. IV of 1879). On the whole, there has been an increase of 1 Superintendent of Vaccination, 1 Inspector, 7 Vaccinators, and 7 Peons: in all 16 persons.

Additional grants have been given by the Local Fund Committees of Khándesh, Ahmednagar, Dhárwár, Ahmedabad, Hyderabad, Thar and Párkar, and Shikárpur, during the current year for the entertainment of additional vaccinators at places where they were much needed, and it is hoped, that the Local Fund Committees of Poona, Kaládgi, Kolába, Broach, Kaira and Kurrachee will do the same, as in these Districts the vaccinators are below the required strength.

Work amongst the Civil and Military population.

3. The following table contrasts the work amongst the Civil and Military Population during the year under report with that for 1878-79:—

Establishment.	Persons Primarily Vaccinated.			Persons Re-vaccinated.				Total number of Persons operated on.			
	1879-80.	1878-79.	Increase.	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.
In Civil Life.											
Itinerant	563,698	540,580	23,118 4·28	58,531	63,358	..	4,827 7·62	622,329	603,938	18,291 3·03	..
Dispensary	19,119	17,887	1,232 6 89	2,643	3,586	..	943 26·30	21,762	21,473	289 1·35	..
Total ..	582,817	558,467	24,350 4·36	61,174	66,944	..	5,770 8·62	643,991	625,411	18,580 2·97	..
In Army Life.											
Native Army ..	3,049	3,008	41 1·36	1,508	1,948	..	440 22·59	4,557	4,956	..	399 8·05
British Army ..	635	494	141 28·54	440	285	155 54·39	..	1,075	779	296 38·00	..
Total ..	3,684	3,502	182 5·20	1,948	2,233	155 6·94	440 19·70	5,632	5,735	296 5·16	399 6·96
Total for the whole Presidency. ..	586,501	561,969	24,532 4·37	63,122	69,177	155 0·22	6,210 8·98	649,623	631,146	18,876 2·99	399 0·06

It may be observed that there were 586,501 persons primarily vaccinated, and 63,122 re-vaccinated, against 561,969 and 69,177 in 1878-79: thus showing an increase of 24,532 or 4·37 per cent. under primary vaccinations, and a net decrease of 6,055 or 8·76 per cent. under re-vaccinations. There was a slight increase (155 persons) under re-vaccinations amongst European Troops alone, though the rate was 54·39 per cent: the figures being 440 against 285 in the preceding year. As regards the rate of decrease in re-vaccinations, it was 26·30 per cent., being highest, in the work of Dispensaries and 22·59 in that of the Native Army. On the whole, there has been a net increase of 18,477 or in other words for every 100 persons operated on in 1878-79, the numbers for this year have been 102·93.

The number of the surviving newly-born children successfully vaccinated in each Collectorate.

4. The following table shows the number of the surviving newly-born children successfully vaccinated in each Collectorate, exclusive of Native States for the last two years. The birth and death statistics are taken for the calendar year in calculating the number because infants are generally not vaccinated until after three months of their birth:—

No.	Collectorates.	Years.	Children Vaccinated Successfully.		Children available for Vaccination.	Births returned as having been Registered.	Deaths registered among Children under 1 year.
			Those under 1 year.	Those between 1 and 6 years.			
1	Khándesh	1879-80 ...	16,790	12,008	22,123	25,504	3,381
		1878-79 ...	14,415	11,913	14,401	20,374	5,973
2	Násik	1879-80 ...	12,035	5,317	18,200	20,501	2,301
		1878-79 ...	10,328	3,936	11,954	15,431	3,477
3	Ahmednagar	1879-80 ..	12,757	5,731	16,576	18,968	2,392
		1878-79 ...	9,653	6,978	9,134	12,113	2,979
4	Poona	1879-80 ...	8,318	8,795	14,022	15,139	1,117
		1878-79 ...	8,033	8,576	9,905	11,740	1,835
5	Sholápur	1879-80 ..	5,157	5,810	5,630	6,718	1,088
		1878-79 ...	5,149	5,859	5,551	6,769	1,218
6	Sátára	1879-80 ...	16,415	8,782	24,201	27,093	2,892
		1878-79 ...	11,673	12,343	15,786	18,725	2,939
7	Belgaum	1879-80 ...	6,993	7,854	16,702	19,170	2,468
		1878-79 ...	4,360	8,466	9,541	11,773	2,232
8	Dhárwár	1879-80 ...	5,535	6,119	14,210	16,927	2,717
		1878-79 ...	4,250	6,950	7,366	9,966	2,600
9	Kaládgi	1879-80 ...	4,038	4,863	6,160	6,798	638
		1878-79 ...	2,496	6,811	2,147	2,795	648
10	Kánara	1879-80 ...	1,269	5,765	7,675	9,582	1,907
		1878-79 ...	979	5,333	6,092	8,057	1,965
11	Ratnágiri	1879-80 ...	10,547	11,279	12,352	13,609	1,257
		1878-79 ...	9,340	12,241	12,881	13,804	923
12	Kolába...	1879-80 ...	5,125	2,777	6,643	7,351	708
		1878-79 ...	5,444	2,153	5,304	6,043	739
13	Thána	1879-80 ...	9,712	10,198	18,324	20,442	2,118
		1878-79 ...	9,952	7,613	14,443	16,464	2,021
14	Bombay City	1879-80 ...	7,825	2,722	9,067	14,341	5,274
		1878-79 ...	6,558	2,519	7,479	13,896	6,417
15	Surat	1879-80 ...	9,709	5,177	10,610	13,063	2,453
		1878-79 ...	10,427	3,991	12,543	14,965	2,422
16	Broach...	1879-80 ...	4,328	1,999	2,866	4,177	1,311
		1878-79 ...	5,382	1,702	3,956	6,271	2,315
17	Kaira	1879-80 ...	14,712	3,567	13,713	17,287	3,574
		1878-79 ...	16,183	4,117	11,013	15,728	4,715
18	Panch Mahals	1879-80 ...	2,539	2,169	1,993	2,468	475
		1878-79 ...	3,269	2,619	2,920	4,464	1,544
19	Ahmedabad	1879-80 ...	14,187	4,024	11,771	15,321	3,550
		1878-79 ...	17,229	4,380	11,663	16,225	4,562
20	Kurrachee	1879-80 ...	8,346	5,771	2,719	3,390	671
		1878-79 ...	6,736	3,872	2,274	3,332	1,058
21	Hyderabad	1879-80 ...	10,279	8,000	3,137	3,950	813
		1878-79 ...	9,983	6,549	3,568	5,078	1,510
22	Thar and Párkar	1879-80 ...	2,763	3,659	1,204	1,451	247
		1878-79 ...	2,663	3,322	2,797	3,439	642
23	Shikárpur	1879-80 ...	17,026	10,294	2,984	3,882	898
		1878-79 ...	13,956	6,920	3,703	5,130	1,427
24	Upper Sind Frontier...	1879-80 ...	2,749	2,089	629	738	109
		1878-79 ...	2,264	1,297	547	671	124
	Total ...	1879-80 ...	209,154	144,769	243,511	287,870	44,359
		1878-79 ...	190,722	140,460	186,968	243,253	56,285

This year the successful vaccinations fell short of the registered births *minus* deaths, amongst those under 1 year old, in the total number of Districts as well as in the first fifteen out of the twenty-four, and yet the figures are higher than those for last year in the return of newly-born children, and also there is a greater proportionate number of successful cases in most of the Districts. On the whole, out of 243,511 surviving infants available for vaccination 209,154 or 85·89 per cent. have been protected.

Primary Vaccinations.

5. The next table shows the number of persons primarily vaccinated, as also the increase or decrease for each of the last ten years :—

Primarily Vaccinated.	Years ended 31st March.										
	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Persons	464,667	496,582	527,153	570,025	625,818	671,817	690,639	732,184	670,055	561,969	586,501
Increase	..	31,915	30,571	42,872	55,793	45,999	18,822	41,545	(Decrease). 62,129	108,086	24,532

Results in Primary Vaccinations.

Out of 586,501 persons primarily vaccinated, 557,840 cases were successful, or 95·11 per cent. against 94·53 in 1878-79 and 94·11 in 1877-78: thus showing that there was an improvement in the quality and the quantity of the work performed during the year. The number of unsuccessful cases also compares favourably with that of the previous year, being 15,178 against 19,425. Secondary operations, after the failure of the first, were performed on 2,315 persons, and 15,798 persons escaped observation.

Re-vaccinations.

6. The following table shows the number of persons primarily vaccinated, and the success among them for the past ten years:—

	Years ended 31st March.									
	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Number of persons primarily vaccinated.	496,582	527,153	570,025	625,818	671,817	690,639	732,184	670,055	561,969	586,501
Do. successfully.	452,661	486,018	516,726	568,275	635,982	660,556	698,148	630,590	531,221	557,840
Percentage of Success ..	91·16	92·20	90·65	90·81	94·67	95·64	95·35	94·11	94·53	95·11

Results in Re-vaccinations.

During the year, 63,122 persons were re-vaccinated against 69,177 for 1878-79. In 235 instances the re-vaccinations were repeated; in 6,206 instances the results could not be ascertained; and in 11,716 it failed. The number of successful cases was 45,435 or 71·98 per 100 against 72·03 in the preceding year. The number of persons re-vaccinated and the success among them for the last ten years are given below:—

	Years ended 31st March.									
	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Number of persons re-vaccinated.	30,119	21,965	18,332	26,405	60,807	117,714	82,993	80,893	69,177	63,122
Do. successfully.	18,950	13,038	10,362	14,894	45,618	94,468	66,770	60,847	49,830	45,435
Percentage of Success ..	62·92	59·35	56·52	56·41	75·02	80·25	80·45	75·22	72·03	71·98

Total Operations.

7. The subjoined table shows the total number of persons primarily vaccinated and re-vaccinated (as taken together), as also the number of successful cases during each of the last ten years:—

	Years ended 31st March.									
	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Persons operated on	526,701	549,118	588,357	652,223	732,624	808,353	815,177	750,948	631,146	649,623
Do. sucessfully.	471,611	499,056	527,088	583,169	681,600	755,024	764,918	691,437	581,051	603,275
Percentage of Success ..	89·54	90·88	89·59	89·41	93·34	93·40	93·83	92·08	92·06	92·87

Results in Total Operations.

It may be seen that the total number of persons operated on were 649,623, and of these 603,275 or 92·87 per cent. were successful. In 1878-79 the percentage was 92·06. There were 2,550 persons operated on more than once; the "unsuccessful" numbered 26,894 and the "unknown" cases were 22,004.

Primary Vaccinations, Re-vaccinations, and Total Operations by Districts and Circles.

8. The details of the total number of persons operated on for the last two years by Districts and Circles of vaccination together with the percentages of increase and decrease are shown as under:—

Districts and Circles.	Persons Primary Vaccinated.				Persons Re-vaccinated.				Total Number of Persons operated on.			
	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.
Northern Deccan Registration District.	102,909	93,915	8,994 / 9·58	..	5,391	1,150	4,241 / 368·78	..	108,300	96,065	12,235 / 13·92	..
Southern Deccan Registration District.	92,581	86,636	5,945 / 6·86	..	2,087	1,715	372 / 21·69	..	94,668	88,351	6,317 / 7·15	..
Konkan Registration District ..	71,571	66,147	5,424 / 8·20	..	5,486	8,828	..	3,342 / 37·86	77,057	74,975	2,082 / 2·78	..
Presidency Circle	12,108	10,566	1,542 / 14·59	..	2,631	2,733	..	102 / 3·73	14,739	13,299	1,440 / 10·83	..
Eastern Gujarát Registration District.	89,849	100,883	..	11,034 / 10·94	2,011	2,807	..	796 / 28·36	91,860	103,690	..	11,830 / 11 41
Western Gujarát Circle	65,629	73,756	..	8,127 / 11·02	4,146	3,719	427 / 11·48	..	69,775	77,475	..	7,700 / 9·94
Sind Registration District ..	80,414	66,023	14,391 / 21·80	..	37,971	45,284	..	7,313 / 16·15	118,385	111,307	7,078 / 6·36	..
Baroda	51,242	48,286	2,956 / 6·12	..	172	250	..	78 / 31·20	51,414	48,536	2,878 / 5·93	..
Cutch..	15,474	11,312	4,162 / 36·79	..	1,257	451	806 / 178·71	..	16,731	11,763	4,968 / 42·23	..
Aden	1,040	943	97 / 10·29	..	22	7	15 / 2·14	..	1,062	950	112 / 11·79	..
British Army	635	494	141 / 28·54	..	440	285	155 / 54·39	..	1,075	779	296 / 38·00	..
Native do.	3,049	3,008	41 / 1·36	..	1,508	1,948	..	440 / 22·59	4,557	4,956	..	399 / 8·05
Total ..	586,501	561,969	43,693 / 7·78	19,161 / 3·41	63,122	69,177	6,016 / 8·70	12,071 / 17·46	649,623	631,146	38,406 / 6·09	19,929 / 3·16

9. In primary vaccinations a decrease of 19,161 is to be observed only for Eastern and Western Gujarát, and the causes ascribed are the diminution of population, owing to adverse seasons for the last two years, and the prevalence of a very severe and wide-spread epidemic of fever. The rate of decrease amounts to 3·41 per cent. The annexed table for the five Registration Districts of Gujarát shows that the revenue census figures of August 1879 are less by 198,238 than the census figures of 1872. This would give a diminution of somewhere between 450 or 500,000 of population for the Eastern and Western Gujarát, as also a proportionate decrease in the number of children available for vaccination which, at the rate of 31 per mille, would be between 14 and 15,000.

Primary Vaccinations. Increase and decrease by Districts and Circles.

Children available for Vaccination in the Eastern and Western Gujarát on account of the diminution of population.

No.	Registration Districts.	Census of 1872.			Revenue Census of August 1879.			Decrease.
		Males.	Females.	Total.	Males.	Females.	Total.	
1	Surat	304,246	302,841	607,087	319,675	286,356	606,031	1,056
2	Broach	182,511	167,811	350,322	156,073	148,637	304,710	45,612
3	Kaira	419,142	363,591	782,733	415,640	354,307	769,947	12,786
4	Panch Mahâls...	126,304	114,439	240,743	108,687	99,902	208,589	32,154
5	Ahmedabad	438,759	390,878	829,637	382,568	340,439	723,007	106,630
	Total ...	1,470,962	1,339,560	2,810,522	1,382,643	1,229,641	2,612,284	198,238

As regards the increase, which is 43,693 or 7·78 per cent., the other Districts and Circles are in the following order :—the Cutch Circle, British Army, Sind, Presidency Circle, Aden, Northern Deccan, Konkan, Southern Deccan, Baroda, and Native Army, where the rate is only 1·36 per 100.

10. In re-vaccinations the increase is distributed over half the number of Districts and Circles, but the decrease in the other six Districts is more than the increase, so that the net decrease is 6,055, the increase being 6,016. The rates of increase for the Northern Deccan and Cutch are very high ; they are 368·78 and 178·71 per cent. respectively. Next in order are the British Army, Southern Deccan, Western Gujarát and Aden where the rate is 2·14 per 100. The decrease in other Districts is 17·46 per cent., more than double the rate of increase. These Districts stand in the following sequence :—the Konkan, Baroda, Eastern Gujarát, Native Army, Sind and Presidency Circle, which gives the rate as 3·73 per cent.

Re-vaccinations. Increase and decrease by Districts and Circles.

11. In the total operations a decrease of 19,929 is spread over the Eastern and Western Gujarát and the Native Army, which has the lowest rate of 8·05 per cent.; whilst an increase of 38,406 is distributed over all the other Districts in the following sequence :—the Cutch Circle, British Army, Northern Deccan, Aden, Presidency Circle, Southern Deccan, Sind, Baroda, and Konkan, where it is only 2·78 per cent. The net increase is 18,477 or 2·93 per cent.

Total Operations. Increase and decrease by Districts and Circles.

Districts and Circles.	Years.	Persons Primarily Vaccinated.								Total number of Persons operated on P. = Primary Vaccinations. R. = Re-vaccinations.		
		Caste.					Age. N. = Number. S. = Successful.			Sex.		Total.
		Christians.	Hindus.	Muslimans.	Pársis.	Other Castes.	Under 1 year.	Between 1 and 6 years.	All other Ages.	Males.	Females.	
Northern Deccan Registration District.	1879-80	340	87,459	5,653	60	9,397	N. 56,804 S. 55,492	39,960 38,553	6,145 5,255	P 52,104 R 3,802	50,805 1,589	1,02,909 5,391
										55,906	52,394	1,08,300
	1878-79	320	82,623	4,765	57	6,150	N. 50,234 S. 48,650	40,134 38,743	3,547 3,455	P 47,872 R 868	46,043 282	93,915 1,150
										48,740	46,325	95,065
Southern Deccan Registration District.	1879-80	264	80,875	6,019	13	5,410	N. 48,739 S. 46,926	41,370 39,367	2,472 2,180	P 47,661 R 1,839	44,920 248	92,581 2,087
										49,500	45,168	94,668
	1878-79	227	76,224	5,738	2	4,445	N. 33,348 S. 31,793	50,861 47,798	2,427 2,409	P 44,353 R 1,386	42,283 329	86,636 1,715
										45,739	42,612	88,351
Konkan Registration District.	1879-80	1,893	63,548	2,776	67	3,287	N. 30,311 S. 29,453	35,722 34,460	5,538 5,084	P 37,008 R 3,385	34,563 2,101	71,571 5,486
										40,393	36,664	77,057
	1878-79	1,436	58,523	2,812	42	3,334	N. 29,550 S. 28,454	32,142 30,741	4,455 4,156	P 34,028 R 5,359	32,119 3,469	66,147 8,828
										39,387	35,588	74,975
Presidency Circle.	1879-80	886	7,261	1,775	989	1,197	N. 8,581 S. 7,825	3,069 2,722	458 343	P 6,039 R 2,325	6,069 306	12,108 2,631
										8,364	6,375	14,739
	1878-79	757	5,647	2,202	990	970	N. 7,390 S. 6,558	2,927 2,519	240 170	P 5,376 R 2,490	5,190 243	10,566 2,733
										7,866	5,433	13,299
Eastern Gujarát Registration District.	1879-80	66	77,055	7,605	330	4,793	N. 56,674 S. 55,049	30,955 29,798	2,220 2,056	P 47,246 R 1,669	42,603 342	89,849 2,011
										48,915	42,945	91,860
	1878-79	54	86,561	8,482	332	5,454	N. 65,434 S. 63,056	32,072 30,695	3,377 3,266	P 53,353 R 2,313	47,530 494	100,883 2,807
										55,666	48,024	103,690
Western Gujarát Circle.	1879-80	19	54,881	7,862	9	2,858	N. 31,177 S. 28,932	33,342 29,791	1,110 1,086	P 33,943 R 2,298	31,686 1,848	65,629 4,146
										36,241	33,534	69,775
	1878-79	14	61,726	7,803	22	4,191	N. 41,848 S. 37,694	30,770 27,459	1,138 997	P 37,779 R 2,140	35,977 1,579	73,756 3,719
										39,919	37,556	77,473
Sind Registration District.	1879-80	155	12,917	61,522	26	5,794	N. 44,030 S. 42,337	32,486 30,980	3,898 3,472	P 44,278 R 18,205	36,136 19,766	80,414 37,971
										62,483	55,902	118,385
	1878-79	159	12,243	48,364	25	4,732	N. 38,390 S. 36,712	24,712 23,450	2,921 2,600	P 36,133 R 23,112	29,890 22,172	66,023 45,284
										59,245	52,062	111,307
Baroda	1879-80	3	44,945	3,748	65	2,481	N. 37,465 S. 36,140	13,380 12,703	397 342	P 27,175 R 97	24,067 75	51,242 172
										27,272	24,142	51,414
	1878-79	5	42,820	3,570	55	1,836	N. 34,175 S. 32,454	13,063 12,147	1,048 961	P 25,334 R 184	22,952 66	48,286 250
										25,518	23,018	48,536

Results.				Excess of Operations over Persons.	Ratio per 100.															
					Persons Primarily Vaccinated.								Total number of Persons Operated on.			Results.				
					Caste.					Age.			Sex.							
Successful.	Unsuccessful.	Unknown.	Total.		Christians.	Hindus.	Musalmans.	Parsis.	Other Castes.	Under 1 year.	Between 1 and 6 years.	All other Ages.	Males.	Females.	Total.	Successful.	Unsuccessful.	Unknown.	Total.	Excess of Operations over Persons.
99,300	1,673	2,210	103,183	274	0·23	84·99	5·49	0·06	9·13	55·20	38·83	5·97	50·63	49·37	100	96·49	1·36	2·15	100·27	0·27
3,393	1,341	659	5,393	2						53·92	37·46	5·11	70·52	29·48	100	62·94	24·84	12·22	100·04	0·04
102,693	3,014	2,869	108,576	276	..	..	..	..	..	..	..	..	51·62	48·38	100	94·62	2·53	2·65	100·25	0·25
90,848	1,978	1,538	94,364	449	0·34	87·98	5·07	0·06	6·55	53·49	42·73	3·78	50·97	49·03	100	96·73	1·63	1·64	100·48	0·48
728	345	77	1,150	..						51·80	41·25	3·68	75·48	24·52	100	63·30	30·00	6·70	100	..
91,576	2,323	1,615	95,514	449	..	..	..	..	..	..	..	..	51·27	48·73	100	96·38	1·97	1·70	100·47	0·47
88,473	1,792	2,506	92,771	190	0·29	87·35	6·50	0·02	5·84	52·64	44·69	2·67	51·48	48·52	100	95·56	1·73	2·71	100·21	0·21
1,689	258	141	2,088	1						50·69	42·52	2·35	88·12	11·88	100	80·93	12·31	6·76	100·05	0·05
90,162	2,050	2,647	94,859	191	..	..	..	..	..	..	..	..	52·29	47·71	100	95·24	1·96	2·80	100·20	0·20
82,000	2,125	2,809	86,934	298	0·26	87·98	6·63	0·00	5·13	38·49	58·71	2·80	51·19	48·81	100	94·65	2·11	3·24	100·34	0·34
1,314	280	123	1,717	2						36·70	55·17	2·78	80·82	19·18	100	76·62	16·21	7·17	100·12	0·12
83,314	2,405	2,932	88,651	300	..	..	..	..	..	..	..	..	51·77	48·23	100	94·30	2·38	3·32	100·34	0·34
68,997	1,961	872	71,830	259	2·65	88·79	3·88	0·09	4·59	42·35	49·91	7·74	51·71	48·29	100	96·40	2·37	1·23	100·36	0·36
3,785	1,494	207	5,486	..						41·15	48·15	7·10	61·70	38·30	100	69·00	27·23	3·77	100	..
72,782	3,455	1,079	77,316	259	..	..	..	..	..	..	..	..	52·42	47·58	100	94·45	4·15	1·40	100·34	0·34
63,351	2,244	908	66,503	356	2·17	88·48	4·25	0·06	5·04	44·67	48·59	6·74	51·44	48·56	100	95·77	2·86	1·37	100·54	0·54
5,043	3,473	312	8,828	..						43·02	46·47	6·28	60·70	39·30	100	57·13	39·34	3·53	100	..
63,394	5,717	1,220	75,331	356	..	..	..	..	..	..	..	..	52·53	47·47	100	91·22	7·15	1·63	100·47	0·47
10,890	610	1,010	12,510	402	7·32	59·97	14·66	8·17	9·88	70·87	25·35	3·78	49·88	50·12	100	89·94	1·72	8·34	103·32	3·32
1,611	760	262	2,633	2						64·63	32·48	2·83	88·37	11·63	100	61·23	28·81	9·96	100·08	0·08
12,501	1,370	1,272	15,143	404	..	..	..	..	..	..	..	..	56·75	43·25	100	84·82	6·55	8·63	102·74	2·74
9,247	626	1,155	11,028	462	7·16	53·45	20·84	9·37	9·18	70·03	27·70	2·29	50·88	49·12	100	87·52	1·55	10·93	104·37	4·37
1,575	806	358	2,739	6						62·07	33·84	1·61	91·11	8·89	100	57·63	29·27	13·10	100·22	0·22
10,822	1,432	1,513	13,767	468	..	..	..	..	..	..	..	..	59·15	40·85	100	81·37	7·25	11·38	103·52	3·52
86,903	2,152	1,165	90,220	371	0·07	85·76	8·46	0·37	5·34	63·08	34·45	2·47	52·58	47·42	100	96·72	1·98	1·30	100·41	0·41
1,125	667	219	2,011	..						61·27	33·16	2·29	82·99	17·01	100	55·94	33·17	10·89	100	..
88,028	2,819	1,384	92,231	371	..	..	..	..	..	..	..	..	53·25	46·75	100	95·33	2·66	1·51	100·40	0·40
97,017	3,286	1,363	101,666	783	0·05	85·80	8·41	0·33	5·41	64·86	31·79	3·35	52·89	47·11	100	96·17	2·48	1·35	100·78	0·78
1,512	916	384	2,812	5						62·50	30·43	3·24	82·40	17·60	100	53·87	32·45	13·68	100·18	0·18
98,529	4,202	1,747	104,478	788	..	..	..	..	..	..	..	..	53·69	46·31	100	95·02	3·29	1·69	100·76	0·76
59,809	3,085	2,912	65,806	177	0·03	83·62	11·98	0·02	4·35	47·51	50·80	1·69	51·72	48·28	100	91·13	4·43	4·44	100·27	0·27
2,534	1,045	568	4,147	1						44·08	45·39	1·66	55·43	44·57	100	61·12	25·18	13·70	100·02	0·02
62,343	4,130	3,480	69,953	178	..	..	..	..	..	..	..	..	51·94	48·06	100	89·35	5·66	4·99	100·26	0·26
66,150	4,432	3,574	74,156	400	0·02	83·69	10·58	0·03	5·68	56·74	41·72	1·54	51·22	48·78	100	89·69	5·47	4·84	100·05	0·05
2,366	866	492	3,724	5						51·11	37·23	1·35	57·54	42·46	100	63·62	23·15	13·23	100·13	0·13
68,516	5,298	4,066	77,880	405	..	..	..	..	..	..	..	..	51·53	48·47	100	88·44	6·31	5·25	100·52	0·52
76,789	1,260	2,695	80,744	330	0·19	16·06	76·51	0·03	7·21	54·75	40·40	4·85	55·06	44·94	100	95·49	1·16	3·35	100·41	0·11
29,356	4,882	3,939	38,177	206						52·65	38·52	4·32	47·94	52·06	100	77·31	12·86	9·83	100·42	0·42
106,145	6,142	6,634	118,921	536	..	..	..	..	..	..	..	..	52·78	47·22	100	89·66	4·74	5·60	100·45	0·45
62,762	1,265	2,434	66,461	438	0·24	18·54	74·01	0·04	7·17	58·15	37·63	4·42	54·73	45·27	100	95·06	1·25	3·69	100·66	0·66
35,573	4,946	4,896	45,415	131						55·60	35·52	3·94	51·04	48·96	100	78·56	10·63	10·81	100·29	0·29
98,335	6,211	7,330	111,876	569	..	..	..	..	..	..	..	..	53·23	46·77	100	88·35	5·07	6·58	100·51	0·51
49,185	1,494	836	51,515	273	0·01	87·71	7·31	0·13	4·84	73·11	26·11	0·78	53·03	46·97	100	95·99	2·38	1·63	100·53	0·53
130	29	13	172	..						70·53	24·79	0·67	56·40	43·60	100	75·58	16·80	7·56	100	..
49,315	1,523	849	51,687	273	..	..	..	..	..	..	..	..	53·04	46·96	100	95·92	2·43	1·65	100·53	0·53
45,562	2,455	826	48,843	557	0·01	88·68	7·40	0·11	3·80	70·78	27·05	2·17	52·47	47·53	100	94·36	3·93	1·71	101·15	1·15
174	57	20	251	1						67·21	25·16	1·99	73·60	26·40	100	69·60	22·40	8·00	100·40	0·40
45,736	2,512	846	49,094	558	..	..	..	..	..	..	..	..	52·58	47·42	100	94·23	4·03	1·74	101·15	1·15

Districts and Circles.	Years.	Persons Primarily Vaccinated.								Total number of Persons Operated on. P.=Primary Vaccinations. R.=Re-vaccinations.		
		Caste.					Age. N.=Number. S.=Successful.			Sex.		Total.
		Christians.	Hindus.	Musalmans.	Parsis.	Other Castes.	Under 1 year.	Between 1 and 6 years.	All other Ages.	Males.	Females.	
Cutch	1879-80	..	11,213	4,259	2	..	N. 4,842 S. 4,287	10,024 8,702	608 498	P. 8,271 R. 637	7,203 620	15,474 1,257
										8,908	7,823	16,731
	1878-79	..	8,321	2,991	..	..	N. 5,067 S. 4,561	5,915 5,466	330 327	P. 5,804 R. 244	5,508 207	11,312 451
										6,048	5,715	11,763
Aden, Bassadore, and Muscat.	1879-80	18	74	874	5	69	N. 242 S. 192	561 494	237 218	P. 578 R. 19	462 3	1,040 22
										597	465	1,062
	1878-79	8	38	824	3	70	N. 232 S. 192	588 443	123 123	P. 606 R. 6	337 1	943 7
										612	338	950
British Army ..	1879-80	303	252	54	6	20	N. 416 S. 394	156 151	63 59	P. 350 R. 390	285 50	635 440
										740	335	1,075
	1878-79	281	199	8	2	4	N. 429 S. 400	52 41	13 12	P. 224 R. 246	270 39	494 285
										470	309	779
Native Army ..	1879-80	121	1,659	818	23	428	N. 2,345 S. 2,112	695 378	9 9	P. 1,621 R. 1,417	1,428 91	3,049 1,508
										3,038	1,519	4,557
	1878-79	86	2,026	721	12	163	N. 2,578 S. 2,304	423 414	2 1	P. 1,601 R. 1,735	1,407 213	3,008 1,948
										3,336	1,620	4,956
Total for the Bombay Presidency.	1879-80	4,068	442,139	102,965	1,595	35,734	N. 321,626 S. 309,139	241,720 228,099	23,155 20,662	P. 306,274 R. 36,083	280,227 27,039	586,501 63,122
										342,357	307,266	649,623
	1878-79	3,847	436,951	88,780	1,542	31,349	N. 308,684 S. 292,828	233,664 219,916	19,621 18,477	P. 292,463 R. 40,083	269,506 29,094	561,969 69,177
										332,546	298,600	631,146

Particulars of vaccine operations by caste, age, sex and result, with their percentages according to Districts and Circles.

12. The above table specifies by Districts and Circles, caste, age, sex and result in primary vaccinations, and sex and result in re-vaccinations and total operations, as contrasted with those in 1878-79, together with the percentages of those particulars. It may be observed that there is an improvement in the work over that of last year both in numbers and in percentages for each detail.

Caste.

13. There were this year primarily vaccinated 4,068 Christians, 442,139 Hindus, 102,965 Musalmans, 1,595 Parsis, and 35,734 persons of Other Castes; and for all, the numbers are higher than last year, as also the percentages, which are respectively 0·69, 75·39, 17·56, 0·27 and 6·09; the percentage for Hindus is however lower by 2·36. As regards each District and Circle, Christians have a lower percentage by 0·01 in the Northern Deccan; by 0·05 in Sind; and by 9·16 in the British Army. The percentages for Hindus are lower in all the Districts and Circles except three—the Konkan, Presidency Circle and Aden; and for Musalmans, they are lower in the Southern Deccan by 0·13; in the Konkan by 0·37; in the Presidency Circle by 6·18; in Baroda by 0·09; and in Aden by 3·34. Parsis have a lower percentage in the Presidency Circle by 1·20; and in Western Gujarát and

Results.				Excess of Operations over Persons.	Ratio per 100.															
					Persons Primarily Vaccinated.								Total number of Persons Operated on.			Results.				
					Caste.					Age.			Sex.							
Successful.	Unsuccessful.	Unknown.	Total.		Christians.	Hindus.	Musalmans.	Parsis.	Other Castes.	Under 1 year.	Between 1 and 6 years.	All other Ages.	Males.	Females.	Total.	Successful.	Unsuccessful.	Unknown.	Total.	Excess of Operations over Persons.
13,487	708	1,279	15,474	..	..	72·46	27·53	0·01	...	31·29	64·78	3·93	53·45	46·55	100	87·16	4·57	8·27	100	..
707	372	178	1,257	..						27·70	56·24	3·22	50·68	49·32	100	56·25	29·59	14·16	100	..
14,194	1,080	1,457	16,731	..	..	..	..	..	..	..	..	..	53·24	46·76	100	84·84	6·45	8·71	100	..
10,354	471	487	11,312	..	..	73·56	26·44	..	..	44·79	52·29	2·92	51·31	48·69	100	91·53	4·16	4·31	100	..
361	81	9	451	..						40·32	48·32	2·59	54·10	45·90	100	80·04	17·96	2·00	100	..
10,715	552	496	11,763	..	..	..	..	..	..	..	..	..	51·42	48·58	100	91·09	4·69	4·22	100	..
994	85	51	1,040	..	1·73	7·12	84·04	0·48	6·63	23·27	53·94	22·79	55·58	44·42	100	86·92	8·17	4·91	100	..
22	..	..	22	..						18·46	47·50	20·96	86·36	13·64	100	100	..	..	100	..
926	85	51	1,062	..	..	..	..	..	..	..	..	..	56·21	43.79	100	87·20	8·00	4·80	100	..
758	124	61	943	.. 1	0·85	4·03	87·38	0·32	7·42	24·60	62·36	13·04	64·26	35·74	100	80·38	13·15	6·47	100	..
6	1	1	8							20·36	46·98	13·04	85·71	14·29	100	85·71	..	14·29	114·29	14·29
764	125	62	951	1	..	..	..	..	..	..	..	..	64·42	35·58	100	80·42	13·05	6 53	100·11	0·11
604	29	8	641	6	47·72	39·69	8·50	0·94	3·15	65·51	24·57	9·92	55·12	44·88	100	95·12	3·62	1·26	100·94	0·94
208	227	11	446	6						62·05	23·78	9·29	88·64	11·36	100	47·27	50·23	2·50	101·36	1·36
812	256	19	1,087	12	..	..	..	..	..	..	..	..	68·84	31·16	100	75·53	22·70	1·77	101·12	1·12
453	55	1	509	15	56·88	40·23	1·62	0·41	0·81	86·84	10·53	2·63	45·24	54·66	100	91·70	8·10	0·20	103·04	3·04
155	130	..	285	..						80·97	8·30	2·43	86·32	13·68	100	54·39	45·61	..	100	..
608	185	1	794	15	..	..	..	..	..	..	..	..	60·33	39·67	100	78·05	21·82	0·13	101·93	1·93
2,499	329	254	3,082	3	3·97	54·41	26·83	0·75	14·04	76·91	22·79	0·30	53·16	46·84	100	81·96	9·71	8·33	101·08	1·08
875	641	9	1,525	17						69·27	12·40	0·29	93·97	6·03	100	58·02	41·38	0·60	101·13	1·13
3,374	970	263	4,607	5	..	..	..	..	..	..	..	..	66·67	33·33	100	74·04	20·19	5.77	101·10	1·10
2,719	364	3	3,086	78	2·86	67·35	23·97	0·40	5·42	85·70	14·23	0·07	53·22	46·78	100	90·39	9·51	0·10	102·59	2·59
1,023	964	..	1,987	39						76·60	13·76	0·03	89·07	10·93	100	52·52	47·48	..	102·00	2·00
3,742	1,328	3	5,073	117	..	..	..	..	..	..	..	..	67·31	32·69	100	75·50	24·42	0·06	102·36	2·36
557,340	15,178	15,798	588,816	2,315	0·69	75·39	17·56	0·27	6·09	54·84	41·21	3·95	52·22	47·78	100	95·11	2·19	2·70	100·39	0·39
45,435	11,716	6,206	63,357	235						52·71	38·89	3·51	57·16	42·84	100	71·98	18·19	9·83	100·37	0·37
604,275	26,894	22,004	652,173	2,550	..	..	..	..	..	..	..	..	52·70	47·30	100	92·86	3·75	3·39	100·39	0·39
531,221	19,425	15,159	565,805	3,836	0·60	77·75	15·80	0·27	5·58	54·93	41·58	3·49	52·04	47·96	100	94·53	2·77	2·70	100·68	0·68
49,830	12,865	6,672	69,367	190						52·11	39·13	3·29	57·94	42·06	100	72·03	18·32	9·65	100·28	0·28
581,051	32,290	21,831	635,172	4,026	..	..	..	..	..	..	..	..	52·69	47·31	100	92·06	4·48	3·46	100·47	0·47

Sind by 0·01 each. The percentages for Other Castes are lower in four Districts only instead of ten as last year.

Age.

14. The age details are compiled for three stages, viz.—those under 1 year, those between 1 and 6 years, and those above 6 years. The numbers under each stage primarily vaccinated were respectively 321, 626, 241,720 and 23,155 against 308,684, 233,664 and 19,621 during the preceding year. The number of infants successfully vaccinated was 309,139, of children between one and six years 228,099, and of persons of other ages 20,602. Thus out of every 100 persons primarily vaccinated there were 54·84 infants, of whom 52·71 were successfully vaccinated against 52·11 in 1878-79, 47·55 in 1877-78, and 42·18 in 1876-77. Thus every year is characterised by a progress in the protection afforded to infants.

Infants successfully vaccinated as compared with those available for vaccination by Districts and Circles at the rate of 31 per *mille* of Population.

15. In para. 91 of last year's report a rate of 31 per thousand of population is laid down as that of infants available for vaccination. At this rate, and on the total population of 25,065,741 there were successfully vaccinated 39·78 per cent. against 37·69 last year. The table subjoined shows the number of infants protected out of those available for vaccination (at the rate of 31 per mille of population)

by Districts and Circles, as likewise the protection of children between one and six years old :—

Districts and Circles.	Population.	Children under 1 Year available for Vaccination at 31 per 1,000.	Years.	Children under 1 year Vaccinated Successfully.		Children between 1 and 6 years Vaccinated Successfully.	
				Number.	Ratio per 1,000 on Infants.	Number.	Ratio per 1,000 on total Vaccinated.
1. Native Army ...	22,561	699	1879-80	2,112	302·15	378	12·40
			1878-79	2,304	329·61	414	13·76
2. British Army ...	10,050	311	1879-80	394	126·69	151	23·78
			1878-79	400	128·22	41	8·30
3. Sind	2,322,765	72,006	1879-80	42,337	58·80	30,980	38·52
			1878-79	36,712	50·98	23,450	35·52
4. Baroda ...	2,000,225	62,007	1879-80	36,140	58·28	12,703	24·79
			1878-79	32,454	52·34	12,147	25·16
5. Eastern Gujarát ...	3,977,490	123,302	1879-80	55,049	44·65	29,798	33·16
			1878-79	63,056	51·14	30,695	30·43
6. Northern Deccan ...	4,296,187	133,182	1879-80	55,492	41·67	38,553	37·46
			1878-79	48,650	36·53	38,743	41·25
7. Presidency Circle ...	644,405	19,977	1879-80	7,825	39·17	2,722	22·48
			1878-79	6,558	32·83	2,519	23·84
8. Western Gujarát ...	2,815,215	87,272	1879-80	28,932	33·15	29,791	45·39
			1878-79	37,694	43·19	27,459	37·23
9. Konkan ...	2,915,587	90,383	1879-80	29,453	32·59	34,460	48·15
			1878-79	28,454	31·48	30,741	46·47
10. Aden	19,289	598	1879-80	192	32·11	494	47·50
			1878-79	192	32·11	443	46·98
11. Cutch... ...	487,305	15,106	1879-80	4,287	28·38	8,702	56·24
			1878-79	4,561	30·19	5,466	48·32
12. Southern Deccan ...	5,554,665	172,195	1879-80	46,926	27·25	39,367	42·52
			1878-79	31,793	18·46	47,798	55·17
Total ...	25,067,744	777,038	1879-80	309,139	39·78	228,099	38·89
			1878-79	292,828	37·69	219,916	39·13

The Southern Deccan again stands last in this respect, though there is a rise in the percentage of infants protected, and this rise is also the highest of all. Corresponding to this rise there is a fall, the lowest of all, in the ratio of children between one and six years old successfully vaccinated. Sind has a percentage of 58·80 infants protected instead of 50·98 last year. There is a fall in the percentages of infants protected in Eastern and Western Gujarát, Cutch, and British and Native Troops.

Sex.

16. There were 306,274 males and 280,227 females primarily vaccinated. The re-vaccinated were respectively 36,083 and 27,039 and the totals of persons operated on were 342,357 males and 307,266 females. In primary vaccinations the sex percentages are respectively 52·22 and 47·78 against 52·04 and 47·96 last year; in re-vaccinations they are 57·16 and 42·84 against 57·94 and 42·06; and in total operations they are 52·70 and 47·30 against 52·69 and 47·31. These ratios show that this year more females were re-vaccinated.

Results.

17. There is an improvement, too, in the number of "successful" and "unsuccessful" cases. Though "unknown" cases are more than last year, their percentage remains unaltered. Operations returned as unsuccessful were also less. There were 557,840 or 95·11 per cent. successful; 15,178 or 2·19 per cent. unsuccessful, and 15,798 or 2·70 per cent. unknown. Secondary operations amounted to 2,315 or 0·39 per cent. The percentages for 1878-79 were respectively 94·53, 2·77, 2·70 and 0·68.

There is, again, a fall in successful re-vaccinations, and this denotes the protective power of primary or secondary operations. The three kinds of result afforded the respective percentages of 71·98, 18·19 and 9·83 against 72·03, 18·32 and 9·65 in the previous year. In 235 cases or 0·37 per cent. the re-vaccinations were repeated; last year they were repeated in 190 instances.

Of total operations 603,275 or 92·86 per cent. were successful, 26,894 or 3·75 per cent. were unsuccessful and 22,004 or 3·39 were unknown. Last year the percentages were respectively 92·06, 4·48 and 3·46. The excess of operations over persons was 2,550 or 0·39 per 100 against 4,026 or 0·47 per cent. in 1878-79. In calculating the percentages of unsuccessful cases these numbers have been excluded.

Percentages of success reviewed by Districts and Circles.

18. The following table shows by Districts and Circles the percentages of success in primary vaccinations and re-vaccinations, contrasted with those for the previous year :—

No.	Districts and Circles.	Percentages of success in Primary Vaccinations.		Percentages of success in Re-vaccinations.	
		1879-80.	1878-79.	1879-80.	1878-79.
1	Eastern Gujarát Registration District.	96·97	96·25	56·03	52·74
2	Northern Deccan Registration District	96·68	96·90	62·81	62·47
3	Konkan Registration District ...	96·61	96·13	69·75	56·23
4	Baroda Circle	96·06	94·18	76·51	69·35
5	Sind Registration District ...	95·75	95·41	77·00	79·13
6	Southern Deccan Registration District	95·73	94·80	79·40	76·74
7	British Army	95·12	91·70	47·27	54·38
8	Western Gujarát Circle... ...	91·12	89·79	61·34	64·50
9	Dispensaries	91·04	90·75	78·77	64·64
10	Presidency Circle	89·94	87·52	61·23	57·63
11	Cutch Circle	87·16	91·53	56·25	80·04
12	Aden	86·99	80·51	100	.....
13	Native Army	81·96	90·39	58·02	52·52
	Average for the whole Presidency.	95·11	94·53	71·98	72·03

In the "successful" primary vaccinations the percentages are lower than last year in the Northern Deccan, Cutch and Native Army, owing to the "unknown" cases outnumbering the "unsuccessful." In the Native Army, the "unknown" cases this year were 254 against 3 in the preceding year.

Rate per mille of population protected by Primary Vaccinations by Districts and Circles.

19. The number of persons primarily vaccinated successfully out of every 1,000 by Districts and Circles, as compared with 1878-79, is shown in the table below :—

No.	Districts and Circles.	Population of Registration Districts and Circles according to the Census of 1872.	Total number of Persons primarily Vaccinated Successfully.		Number of Primary successful Vaccinations per 1,000 of Population.	
			1879-80.	1878-79.	1879-80.	1878-79.
1	Native Army	22,561	2,499	2,719	110·77	120·52
2	British Army	10,050	604	453	60·10	45·07
3	Aden	19,289	904	758	46·87	39·30
4	Sind Registration District ...	2,322,765	76,789	62,762	33·06	27·02
5	Cutch	487,305	13,487	10,354	27·67	21·25
6	Baroda	2,000,225	49,185	45,562	24·59	22·78
7	Konkan Registration District ...	2,915,587	68,997	63,351	23·66	21·73
8	Northern Deccan Registration District	4,296,187	99,300	90,848	23·11	21·15
9	Eastern Gujárat Registration District	3,977,490	86,903	97,017	21·85	24·39
10	Western Gujárat Circle ...	2,815,215	59,809	66,150	21·24	23·50
11	Presidency Circle	644,405	10,890	9,247	16·90	14·35
12	Southern Deccan Registration District	5,554,665	88,473	82,000	15·93	14·76
	Total ...	25,065,744	557,840	531,221	22·26	21·19
	In British Territory	16,293,693	374,248	348,230	22·97	21·43
	In Native States	8,772,051	183,592	182,991	20·93	20·75

The rate of protection is higher than last year in all the Districts and Circles, except Eastern and Western Gujarát and the Native Army. It is lowest in the Presidency Circle and the Southern Deccan. In British and Native Territory it is respectively 22·97 and 20·93 against 21·43 and 20·75 per mille of population in the previous year. On the whole, 22·26 persons of all ages per every 1,000 of population were primarily vaccinated successfully.

20. The progress of vaccination by different Establishments may be seen from the table subjoined :—

Vaccinations by Establishments.

Establishment.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total number of Persons Operated on.			
	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.
2 Government Vaccinators ..	3,374	4,630	..	1,256 27·13	22	68	..	46 67·65	3,396	4,698	..	1,302 27·71
42 Municipal	48,318	42,211	6,107 14·47	..	10,420	10,687	..	267 2·50	58,738	52,898	5,840 11·04	..
1 Cantonment	939	872	67 7·68	..	473	167	306 183·23	..	1,412	1,039	373 35·90	..
229 Local Fund	322,871	304,420	18,451 6·06	..	40,971	45,710	..	4,739 10·37	363842	350,136	13,712 3·92	..
142 Native States	188,196	188,447	..	251 0·13	6,645	6,726	..	81 1·20	194841	195,173	..	332 0·17
143 Dispensaries	19,119	17,887	1,232 6·89	..	2,643	3,586	..	943 26·30	21,762	21,473	289 1·35	..
British Army	635	494	141 28·54	..	440	285	155 54·39	..	1,075	779	296 38·00	..
Native Army	3,049	3,008	41 1·36	..	1,508	1,948	..	440 22·59	4,557	4,956	..	399 8·05
Total ..	586,501	561,969	26,039 4·63	1,507 0·26	63,122	69,177	461 0·66	6,516 9·42	619623	631,146	20,510 3·25	2,033 0·32

In primary vaccinations a decrease is observed under Government and Native State Establishments amounting to 1,507 or 0·26 per cent., whilst there is an increase of 26,039 or 4·63 per cent. under the other six kinds of Establishment. In re-vaccinations there is a small increase of 461 or 0·66 per cent. under Cantonment and British Army, but there is a decrease of 6,516 in others, or 942. per cent. Taking the two kinds of operations together, there is an increase of 20,510 or 3·25 per cent. and a decrease of 2033 or 0·32 per cent. in three kinds of establishment only, *viz.*— Government, Native State and Native Army.

21. The results in primary vaccinations, re-vaccinations, and total operations, as analysed by Establishments, are as under :—

Results in Vaccine Operations by Establishments.

Establishment.	Years.	Results in Primary Operations.					Results in Re-vaccinations.					Results in Total Operations.				
		Successful.	Unsuccessful	Unknown.	Total.	Excess of Operations.	Successful.	Unsuccessful.	Unknown.	Total.	Excess of Operations.	Successful.	Unsuccessful.	Unknown.	Total.	Excess of Operations.
2 Government Vaccinators.	1879-80	3,220	79	75	3,374	..	19	3	..	22	..	3,239	82	75	3,396	..
	1878-79	4,444	103	83	4,630	..	59	8	1	68	..	4,503	111	84	4,698	..
42 Municipal Vaccinators ..	1879-80	45,069	1,439	2,331	48,839	521	7,077	2,498	898	10,473	53	52,146	3,937	3,229	59,312	574
	1878-79	39,129	1,561	2,140	42,830	619	7,091	2,438	1,198	10,727	40	46,220	3,999	3,338	53,557	659
1 Cantonment Vaccinator.	1879-80	939	..	..	939	..	278	194	1	473	..	1,217	194	1	1,412	..
	1878-79	846	8	23	877	5	115	46	6	167	..	961	54	29	1,044	5
229 Local Fund Vaccinators.	1879-80	312,124	5,445	6,217	323,786	915	30,998	5,919	4,212	41,129	158	343,122	11,364	10,429	364,915	1,073
	1878-79	292,640	7,335	6,109	306,084	1,664	35,279	6,169	4,354	45,802	92	327,919	13,504	10,463	351,886	1,756
142 Native States Vaccinators.	1879-80	175,979	6,688	6,273	188,940	744	3,898	1,868	880	6,646	1	179,877	8,556	7,153	195,586	745
	1878-79	174,757	8,888	6,123	189,768	1,321	3,790	2,346	599	6,735	9	178,547	11,234	6,722	196,503	1,330
143 Dispensaries..	1879-80	17,406	1,169	640	19,215	90	2,082	386	195	2,643	..	19,488	1,535	835	21,858	90
	1878-79	16,233	1,111	677	18,021	131	2,318	764	514	3,596	10	18,551	1,875	1,191	21,617	144
British Army ..	1879-80	604	29	8	641	6	208	227	11	446	6	812	256	19	1,087	12
	1878-79	453	55	1	509	15	155	130	..	285	..	608	185	1	794	15
Native Army ..	1879-80	2,499	329	254	3,082	33	875	641	9	1,525	17	3,374	970	263	4,607	50
	1878-79	2,719	864	3	3,086	78	1,023	964	..	1,987	39	3,742	1,328	3	5,073	117
Total for the Bombay Presidency..	1879-80	557,340	15,178	15,793	588,316	2,315	45,435	11,716	6,206	63,357	235	603,275	26,894	22,004	652,173	2,550
	1878-79	531,221	19,425	15,159	565,805	3,836	49,830	12,865	6,672	69,367	190	581,051	32,290	21,831	635,172	4,026

In primary vaccinations the number of successful cases was less than last year for Government vaccinators and the Native Army, and the decrease is attributable to a less amount of work done by the former, and to a large number of unknown cases in the latter, to the extent of 254 against 3 in the previous year. Of these 254 unknown cases 248 were returned from Nasirabad. The number

of unsuccessful cases was less than last year in all Establishments except Dispensaries, where they were 1,169 against 1,111. A fall in the number of unsuccessful cases indicates an improvement in the work performed. The number of unknown cases outnumber the unsuccessful in the Municipal and Local Fund Establishments and are more than last year in these as well as Native States and the Army generally.

In re-vaccinations the successful cases are less than last year in four kinds of Establishments, *viz.*—Cantonment, Native States, British and Native Army. The intensity of the protective power of primary vaccine operations may be judged by the unsuccessful re-vaccinations. The unsuccessful cases are more in Municipalities, Cantonment and the British Army; and the "unknown" are more in Native States, and the British and Native Army than they were in 1878-79.

Percentages of success reviewed by Establishments.

22. The percentages of successful cases in each kind of operation by Establishments are given below :—

Establishments.		Government.	Municipal.	Cantonment.	Local Funds.	Native States.	Dispensaries.	British Army.	Native Army.	For the whole Presidency.
In Primary Vaccinations.										
Percentage of success ...	1879-80 ...	95·44	93·28	100	96·67	93·51	91·04	95·12	81·96	95·11
	1878-79 ...	95·98	92·70	97·02	96·13	92·74	90·75	91·70	90·39	94·53
In Re-Vaccinations.										
Percentage of success ...	1879-80 ...	86·36	67·92	58·77	75·76	58·66	78·77	47·27	58·02	71·98
	1878-79 ...	86·76	66·35	68·86	77·18	56·35	64·64	54·39	52·52	72·03

In primary vaccinations the percentages are higher than in the preceding year in all Establishments except Government and the Native Army. The highest percentage is 100 in Cantonment and the lowest is 81·96 in the Native Army. The next highest is 96·67 in Local Funds and the next lowest is 91·04 in Dispensaries. In re-vaccinations the lowest percentage is 47·27 in the British Army and the highest is 86·36 for Government vaccinators.

Work of Establishments by Districts and Circles.

23. The work of the different Establishments by Districts and Circles is as follows :—

Work of Government Vaccinators.

24. There are 2 vaccinators for the Contonments of Rájkot and Deesa, paid from Provincial Funds, who work under the Superintendent of Vaccination, Western Gujarát Circle. Half the cost of vaccination in Deesa is borne by the Cantonment Committee. Besides these two, there are three others under the Station Staff Surgeons for the Military Stations of Mhow, Neemuch and Nasirabad, paid from "Military Funds." Their work is included under the head of Native Army and Camp Followers. The Rájkot and Deesa vaccinators work among a population of 95,926 souls in an area of 269 square miles. There were 3,374 persons primarily vaccinated and 22 re-vaccinated, against 4,630 and 68 in the previous year. The decrease is attributable to the paucity of children in consequence of the past two years' distress. The successful cases were respectively 3,220 and 19, which give the percentages of 95·44 and 86·36; so taking the two operations together, 33·77 per thousand of population were protected. The total cost was Rs. 543. The cost of each successful case was annas 2 and pies 8 or 11 pies more than last year. In primary vaccinations the unsuccessful cases were 79 and of unknown 75. In re-vaccinations the unsuccessful were three and there were no "unknown." No person was operated on more than once.

Work of Cantonment Vaccinators.

25. There is only 1 vaccinator for the Cantonments of Poona and Kirkee, which have an area of 4 square miles, and a population of 28,450. His work is supervised by the Deputy Sanitary Commissioner, Northern Deccan Registration District. He primarily vaccinated 939 and re-vaccinated 473 persons. Last year these numbers were respectively 872 and 167. In primary vaccinations all were successful and in re-vaccinations 278 or 58·77 per cent. were successful. The

rate of protection per mille of population was 42·78. The total cost was Rs. 200 and annas 7, or annas 2 and pies 8 per each successful case: exactly half of what it was last year. There were 194 unsuccessful cases and only one "unknown" in re-vaccinations. None were operated on more than once.

Work of Municipal Vaccinators.

26. The following table gives the progress of vaccination by Districts and Circles under Municipal vaccinators :—

District and Circles.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total Number of Persons Operated on.			
	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.
Northern Deccan Registration District...	12,326	8,737	3,589	...	1,777	333	1,444	...	14,103	9,070	5,033	...
Southern Deccan Registration District...	4,826	5,355	...	529	488	320	168	...	5,314	5,675	...	361
Konkan Registration District	1,966	1,793	173	...	389	688	...	299	2,355	2,481	...	126
Presidency Circle ...	12,108	10,566	1,542	...	2,631	2,733	...	102	14,739	13,299	1,440	...
Eastern Gujarát Registration District...	9,297	9,685	...	388	306	559	...	253	9,603	10,244	...	641
Sind Registration District...	6,919	5,249	1,670	...	4,807	6,053	...	1,246	11,726	11,302	424	...
Aden	876	826	50	...	22	1	21	...	898	827	71	...
Total ...	48,318	42,211	7,024	917	10,420	10,687	1,633	1,900	58,738	52,898	6,968	1,128

In primary vaccinations a decrease of 917 is observed in the Southern Deccan and Eastern Gujarát, owing to the abolition of vaccinators for the towns of Guledgudd and Bijápur, Kaládgi Zilla, in the former, and for the town of Dhandhuka, Ahmedabad Zilla in the latter. For the remaining Districts there is a collective increase of 7,024. In re-vaccinations there is a decrease of 1,900 in four Districts and an increase of 1,633 in three, *viz.*—the Northern and Southern Deccan and Aden. On the whole, taking the two operations together, there is a net increase of 5,840. In Sind there are 2 additional vaccinators for the towns of Lárkhána and Jacobabad, and as three were abolished in the Southern Deccan and Eastern Gujarát, there are in all 42 vaccinators instead of 43, as before, who worked amongst a population of 1,632,867 in a area of 178 square miles. They returned 48,318 primary vaccinations and 10,420 re-vaccinations, of which there were, respectively, 45,069 or 93·28 and 7,077 or 67·92 per cent. successful. The percentages of success attained are equal to 31·94 per mille of population. The total cost was Rs. 19,222, annas 14 and pies 11, equal to annas 5 and pies 11, or 2 pies less than in the preceding year, per each successful case. The unsuccessful and unknown were, respectively, 1,439 and 2,498 and 2,331 and 898 under each kind of operation. There were 521 secondary operations and in 53 cases the re-vaccinations were repeated. Each vaccinator, on an average, operated on 1,399 persons. Vaccination is carried on by the medical officers of dispensaries in such towns as have no vaccinators of their own, and where there is no dispensary there the rural vaccinator does it. It would be well, if all towns having a population of 10,000 had special vaccinators, as the dispensary medical officers cannot devote sufficient time to the details of the work. It should at least be arranged that each town circle which compiles birth and death returns should have a vaccinator.

Requisition of Special Vaccinators for towns having 10,000 population.

Districts.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total Number of Persons Operated on			
	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.
Northern Deccan Registration District.. ..	83,874	78,323	5,551	..	2,969	609	2,360	..	86,843	78,932	7,911	..
Southern Deccan Registration District.. ..	57,685	55,332	2,353	..	1,011	781	230	..	58,696	56,113	2,583	..
Konkan Registration District	59,368	55,201	4,167	..	4,168	5,118	..	950	63,536	60,319	3,217	..
Eastern Gujarát Registration District	53,239	59,546	..	6,307	1,543	1,709	..	166	54,782	61,255	..	6,473
Sind Registration District	68,705	56,018	12,687	..	31,280	37,493	..	6,213	99,985	93,511	6,474	..
Total ..	322,871	304,420	24,758	6,307	40,971	45,710	2,590	7,329	363,842	350,130	20,185	6,473

Work of Local Fund Vaccinators.

27. This table shows the work of Local Fund Vaccinators for each of the five Registration Districts, and it is only in Eastern Gujarát where there is a decrease in the primary vaccinations and total operations of 6,307 and 6,473 respectively. In re-vaccinations there is an increase of 2,590 in the Northern and Southern Deccan only, and a decrease of 7,329 in the other three Districts. In primary vaccinations there is an increase of 24,758. On the whole, there is a net increase of 13,712. This year there were 229 vaccinators against 219 in the previous year. Thus there were 10 more—7 in the Northern Deccan, 6 of whom were in the Khándesh District and 1 in the Násik District for the Peint State which has lapsed to Government; 2 in the Konkan in the Thána District, and 1 in Eastern Gujarát for Petha Mahál Modása, Ahmedabad District. More vaccinators have been entertained since 1st April 1880, and there are now only 6 vaccinators (1 in Kolába, 1 in Broach and 4 in Kurrachee) who have more than one rural circle to attend to. The Local Fund Vaccinators worked over an area of 1,24,142 square miles and amongst a population of 14,610,686. They primarily vaccinated 322,871 and re-vaccinated 40,971 persons. The number primarily vaccinated successfully was 312,124, or 96·67 per cent., and those re-vaccinated successfully were 30,998, or 75·66 per cent. The rate of protection per mille of population was 23·48. The total cost amounted to Rs. 66,962-0-8. Each successful case cost annas 3 and pie 1, or 2 pies less than in 1878-79. The unsuccessful in each kind of operations were, respectively, 5,445 and 5,919, and the unknown were 6,217 and 4,212. There were 915 secondary operations and 158 repetitions of re-vaccinations. Each vaccinator averaged 1,589 persons.

Districts and Circles.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total Number of Persons Operated on.			
	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.	1879-80.	1878-79.	Increase.	Decrease.
Northern Deccan Registration District.. ..	1,670	2,866	..	1,196	138	2	136	..	1,808	2,868	..	1,060
Southern Deccan Registration District.. ..	26,726	23,564	3,162	..	263	180	83	..	26,989	23,744	3,245	..
Konkan Registration District	7,862	6,578	1,284	..	785	2,154	..	1,369	8,647	8,732	..	85
Eastern Gujarát Registration District	23,613	26,842	..	3,229	75	142	..	67	23,688	26,984	..	3,296
Western Gujarát Circle ..	61,443	68,050	..	6,607	3,938	3,484	454	..	65,381	71,534	..	6,153
Sind Registration District	2,303	2,797	..	494	23	65	..	42	2,326	2,862	..	536
Baroda	49,105	46,438	2,667	..	166	248	..	82	49,271	46,686	2,585	..
Cutch	15,474	11,312	4,162	..	1,257	451	806	..	16,731	11,763	4,968	..
Total ..	188,196	188,447	11,275	11,526	6,645	6,726	1,479	1,560	194,841	195,173	10,798	11,130

Work of Native State Vaccinators.

28. The above table shows the work of Native State vaccinators in five Districts and three Circles. For two Districts and two Circles, *viz.*—the Southern Deccan, and the Konkan, and Baroda and Cutch, there is an increase in primary vaccinations of 11,275, but there is a decrease of 11,526 in the Northern Deccan, Eastern and Western Gujarát and Sind. The decrease in the Northern Deccan is due to the lapsing of Peint State to Government, the work there being now included in that of Local Fund Vaccinators. In re-vaccinations there is a decrease of 1,560 in the Konkan, Eastern Gujarát, Sind and Baroda. This decrease is more than the increase which amounts to 1,479. On the whole the net decrease is 332. There were 142 vaccinators maintained by Native States against 144 last year, or 1 less in the Northern Deccan owing to the inclusion of the Peint State in Local Funds, and 1 less in the Southern Deccan owing to the abolition of 1 vaccinator by the Kurundvád State. They worked over an area of 69,955 square miles and amongst a population of 8,665,204. The numbers primarily vaccinated were 188,196 and 6,645 were re-vaccinated. Of these the successes were 175,979 and 3,898 respectively, or 93·51 and 58·66 per cent. The unsuccessful and unknown in primary vaccinations were 6,688 and 6,273 and 1,868 and 880 in re-vaccinations. There were 744 secondary operations and only 1 person was re-vaccinated more than once. Out of every 1,000 of population 20·77 were successfully operated on. The total cost amounted to Rs. 48,809-0-7. This gives annas 4 and pies 4 per each successful case or only 1 pie more than last year. The average number of persons operated on by each vaccinator was 1,372.

States that require additional Vaccinators.

Additional vaccinators are required for each of the States of Sávantvádi, Sángli Táluka, Gad Hinglaj, Panála, and Kolhápur Petha.

Work of Dispensary Officers.

29. There were 143 dispensaries, or 6 more than in the preceding year, in which vaccinations were carried on. The following table shows the progress of vaccination in dispensaries by each District and Circle :—

Districts and Circles.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total number of Persons Operated on.			
	1879-80.	1878-79.	Increase	Decrease.	1879-80.	1878-79.	Increase	Decrease.	1879-80.	1878-79.	Increase	Decrease.
Northern Deccan Registration District	4,100	3,117	983	..	34	39	..	5	4,134	3,156	978	..
Southern Deccan Registration District	3,344	2,385	959	..	325	434	..	109	3,669	2,819	850	..
Konkan Registration District	2,375	2,575	..	200	144	868	..	724	2,519	3,443	..	924
Eastern Gujarát Registration District	3,700	4,810	..	1,110	87	397	..	310	3,787	5,207	..	1,420
Western Gujarát Circle	812	1,076	..	264	186	167	19	..	998	1,243	..	245
Sind Registration District	2,487	1,959	528	..	1,861	1,673	188	..	4,348	3,632	716	..
Baroda.	2,137	1,848	289	..	6	2	4	..	2,143	1,850	293	..
Bassadore and Muskat	164	117	47	..	..	6	..	6	164	123	41	..
Total ..	19,119	17,887	2,806	1,574	2,643	3,586	211	1,154	21,762	21,473	2,878	2,589

A decrease of 1,574 is observed in the Konkan, and Eastern and Western Gujarát, in primary vaccinations. The decrease in the Konkan is owing to no work having been done in the Dispensaries of Uran and Vengurla; in Eastern Gujarát in those of Olpád, Kaira Police Hospital, and Devgad Báriya; and in Western Gujarát in those of Dhoráji and Sársai. There is an increase of 2,806 in other Districts. In re-vaccinations there is an increase of 211 in Western Gujarát, Sind and Baroda, and a decrease of 1,154 in the other Districts. On the whole there is a net increase of 189 over the work of last year. There were 19,119 persons primarily vaccinated and 2,643 re-vaccinated. The respective numbers of successful cases were 17,406 and 2,082. The percentages of success were 91·04 and 78·77. The unsuccessful and unknown were 1,169 and 640 in primary vaccinations and 366 and 195 in re-vaccinations. The number of secondary operations was 96. No person was re-vaccinated more than once.

Work performed in the Army generally.

30. The following table shows details of vaccination in the Army generally and amongst Camp Followers :—

	Primary Vaccinations.																
	1		2					3			4					5	6
	Sex.		Caste.					Age.			Results.						
											Successful.			Unsuccessful and doubtful.	Unknown.	Total.	Excess of Operations over Persons.
	Males.	Females.	Christians.	Hindus.	Musálmans.	Pársis.	Other Castes.	Under 1 year.	Between 1 and 6 years.	Above 6 years.	Under 1 year.	Above 1 and 6 years.	Total of all Ages.				
British Army.																	
Regiments 1879-80	129	129	236	19	3	..	..	219	26	13	201	26	236	20	8	264	6
Regiments 1878-79	128	137	265	..	..	..	..	205	47	13	187	36	235	40	..	275	10
Camp Followers. 1879-80	221	156	67	233	51	6	20	197	130	50	193	125	368	9	..	377	..
Camp Followers. 1878-79	96	133	16	199	8	2	4	224	5	..	213	5	218	15	1	234	5
Total. 1879-80	350	285	303	252	54	6	20	416	156	63	394	151	604	29	8	641	6
Total. 1878-79	224	270	281	199	8	2	4	429	52	13	400	41	453	55	1	509	15
Native Army.																	
Regiments 1879-80	594	490	60	658	340	..	26	875	201	8	858	167	1,033	66	5	1,104	20
Regiments 1878-79	656	572	41	874	270	1	42	1,016	210	2	932	202	1,133	137	2	1,272	44
Camp Followers. 1879-80	1,027	938	61	1,001	478	23	402	1,470	494	1	1,254	211	1,466	263	249	1,978	13
Camp Followers. 1878-79	945	835	45	1,152	451	11	121	1,562	218	..	1,374	212	1,586	227	1	1,814	34
Total. 1879-80	1,621	1,428	121	1,659	818	23	428	2,345	695	9	2,112	378	2,499	329	254	3,082	33
Total. 1878-79	1,601	1,407	86	2,026	721	12	163	2,,78	428	2	2,304	414	2,719	364	3	3,086	78

	Re-vaccinations.							Percentages of Successful Cases.	
	7		8			9	10	11	
	Sex.		Result.						
	Males.	Females.	Successful.	Unsuccessful and doubtful.	Unknown.	Total.	Excess of Operations over Persons.	In Primary Vaccinations.	In Re-vaccinations.
British Army.									
Regiments .. 1879-80 ..	376	49	201	219	11	431	6	91·47	47·29
Regiments .. 1878-79 ..	238	34	147	125	....	272	....	88·66	54·04
Camp Followers. 1879-80 ..	14	1	7	8	....	15	....	97·61	46·67
Camp Followers. 1878-79 ..	8	5	8	5	....	13	....	95·20	61·54
Total. 1879-80 ..	390	50	208	227	11	446	6	95·12	47·27
Total. 1878-79 ..	246	39	155	130	....	285	....	91·70	54·39
Native Army.									
Regiments .. 1879-80 ..	1,349	53	832	582	5	1,419	17	95·29	59·34
Regiments .. 1878-79 ..	1,717	201	1,010	947	....	1,957	39	92·26	52·66
Camp Followers. 1879-80 ..	68	33	43	59	4	106	....	74·61	40·57
Camp Followers. 1878-79 ..	18	12	13	17	....	30	....	80·91	43·33
Total. 1879-80 ..	1,417	91	875	641	9	1,525	17	81·96	58·02
Total. 1878-79 ..	1,735	213	1,023	964	....	1,987	39	90·39	52·52

European Troops.

31. Amongst European Troops the number of persons primarily vaccinated was 635, and in 604 cases or 95·12 per cent. the operation was successful. The unsuccessful and unknown were 9 and 8 respectively: there were 6 secondary operations. The re-vaccinations were 440, of which 208 or 47·27 were successful; whilst 227 were unsuccessful and 11 were unknown. Six persons were re-vaccinated more than once. Last year there were 494 persons primarily vaccinated and 285 were re-vaccinated, so there is a net increase of 296 persons.

Native Troops.

32. In the Native Army the primarily vaccinated numbered 3,049 and the re-vaccinated 1,508. In primary vaccinations there is a slight increase of 41 and in re-vaccinations there is a decrease of 440, so the net decrease is 399. The number of persons primarily vaccinated successfully was 2,499 or 81·96 per cent. This is 8·43 less than in the preceding year, owing to the large number of "unknown" cases amongst the Camp Followers, chiefly at Nasirabad. In re-vaccinations there were 875 or 58·02 per cent. successful. The unsuccessful and unknown cases numbered respectively 329 and 254 in primary vaccinations and 641 and 9 in re-vaccinations. Secondary operations were 33, and 17 persons were re-vaccinated more than once. The work performed by vaccinators in the Military Stations of Mhow, Neemuch and Nasirabad is included, as usual, in that for Camp Followers.

Average number of Operations per each kind of Establishment.

33. The average number of persons operated on by different Establishments is specified below for the years 1878-79 and 1879-80:—

No.	Establishments.	Average number of Persons Operated on.	
		1879-80.	1878-79.
1	2 Government Vaccinators	1,698	2,349
2	42 Municipal do.	1,399	1,230
3	1 Cantonment do.	1,412	1,039
4	229 Local Fund do.	1,589	1,599
5	142 Native State do.	1,372	1,355
6	416 for the whole Presidency	1,496	1,477

There is a decrease under Government and Local Fund Vaccinators, and it is owing to a decrease of work by the former and an increase of numerical strength for the latter.

Average number of Operations per Vaccinator by Districts and Circles.

34. The subjoined table indicates the averages by Districts and Circles :—

No.	Districts and Circles.	Average number of Persons Vaccinated by each Vaccinator.		Names of Deputy Sanitary Commissioners and Superintendents.
		1879-80.	1878-79.	
1	Sind Registration District ...	2,152	2,111	Drs. J. Parker, A. W. G. Adey, and C. W. MacRury.
2	Presidency Circle	1,842	1,662	Dr. Ananta Chandroba.
3	Western Gujarát Circle ...	1,599	1,773	Drs. R. Batty and J. T. Welsh.
4	Baroda Circle	1,590	1,506	Dr. Bhalchandra Krishna.
5	Konkan Registration District ...	1,586	1,590	Drs. T. Cody and O. H. Channer.
6	Eastern Gujarát Registration District.	1,444	1,614	Dr. M. B. Colah.
7	Northern Deccan Registration District.	1,353	1,294	Drs. W. Nolan and J. Parker.
8	Southern Deccan Registration District.	1,137	1,031	Drs. J. P. Greany, H. A. Lewis and J. W. Clarkson.
9	Cutch Circle	1,115	784	Dr. Dorabji Hormusji.
10	Aden	878	827	Dr. J. Macgregor.
	Average for the whole Presidency.	1,496	1,477	

The averages are below those of last year in the Konkan and Eastern and Western Gujarát. The Northern and Southern Deccan, Eastern Gujarát, Cutch and Aden are below the average for the whole Presidency. The Presidency Circle, Baroda and Cutch have respectively risen from the 3rd, 6th, and 10th to the 2nd, 4th, and 9th places; whilst Eastern and Western Gujarát and Aden have fallen from the 4th, 2nd, and 9th to the 6th, 3rd, and 10th places. Sind, the Konkan, and the Northern and Southern Deccan hold as last year the 1st, 5th, 7th and 8th places.

English Lymph.

35. The first Statement on the opposite page shows the result for the English lymph received during the year. There were five separate lots, two of 45 tubes each for the Bombay District and three for Aden where English lymph is now sent direct. Of the two Bombay lots, the first was better in quality than the second, which proved ineffectual in the Southern Deccan, Western Gujarát and Cutch; and in Sind, out of 46 insertions made on the arms of 7 children by using one tube for one child, the resulting vesicles were only four. In Baroda, too, out of 4 tubes used on the arms of 4 children only two good vesicles were obtained. In Aden the second lot was a complete failure.

Quality of the Lymph in use.

36. The quality of the lymph in use was throughout good.

Lymph supplied.

37. During the year lymph was supplied from the Northern Deccan to the Medical Officer, 3rd Light Infantry, Hoshangabad; to the Superintendent General of Dispensaries and Vaccination, Rajputána, and Deputy Director, Persian Gulf Telegraph, Bushire, from the Konkan; and to the Medical Officer, 7th Regiment N. I., Bhuj, from Western and Eastern Gujarát. Animal lymph was sent from the Presidency Circle to the Sanitary Commissioner, Madras, and also to the Inspector of Vaccination and Deputy Sanitary Commissioner, Madras.

Supplies received in.	No. on the Packet.	Districts and Circles.	Number of: Tubes tested.	Children operated on.	Insertions.	Resulting Vesicles.	Character of Vesicles.	Remarks.
November 1879.	200	Northern Deccan Registration District	9	13.	42	24	Vesicles large ...	Twenty-three children were operated on with the lymph from these vesicles.
	158	Southern Deccan Registration District	6	5	21	21	Good.	
	191	Konkan Registration District	6	6	25	3	Good.	
	200	Eastern Gujarát Registration District	6	6	30	23	Very good ...	Lymph on the whole good.
	191	Western Gujarát Circle ...	6	5	30	2	Small	Vesicles broken. Lymph lost.
	158	Sind Registration District ...	6	6	37	2	Good.	
	181	Baroda	3	2	12	9	Eight good, 1 small but characteristic.	
	325	Cutch	3	3	12	3	Good	The vesicles seemed to have developed well but were scratched off.
		Total ...	45	46	209	87		
January 1880.	241	Northern Deccan Registration District	7	10	39	32	Vesicles large ...	Failed in one child.
	288	Southern Deccan Registration District	6	6	18	...	.....	Failed.
	253	Konkan Registration District .	6	6	17	16	Good.	
	253	Eastern Gujarát Registration District	6	6	33	18	Good and middling	Lymph on the whole good.
	253 & 265	Western Gujarát Circle ...	6	5	30	...	.....	Failed.
	265	Sind Registration District ...	7	7	46	4	Good.	
	276	Baroda	4	4	24	2	Good.	
	276	Cutch	3	3	12	3	Not well developed.	Lymph of middling character.
		Total ...	45	47	219	75		
Jan.	...	Aden	6	6	18	18	Very good ...	
Oct.	...		6	6	18	...	.....	Failed.
June	...		1	1	3	3	Very good ...	
		Total ...	13	13	39	21		
		Grand Total ...	103	106	467	183		

38. Animal vaccination was carried on in Bombay, Poona and Kurrachee. The annexed table shows the number of heifers inoculated and the monthly result of the operations in each of the places mentioned. In Belgaum two heifers were obtained on different occasions, but no vaccinations were performed from them :—

Animal Vaccination.

Months.	Poona. Heifers inoculated.	Poona. Successful.	Poona. Unsuccessful.	Bombay. Heifers inoculated.	Bombay. Successful.	Bombay. Unsuccessful.	Kurrachee. Heifers inoculated.	Kurrachee. Successful.	Kurrachee. Unsuccessful.	Total. Heifers inoculated.	Total. Successful.	Total. Unsuccessful.
April 1879	7	7	...	54	52	2	...	...	...	61	59	2
May ,, ...	3	3	...	54	54	...	...	...	...	57	57	...
June ,, ...	7	6	1	49	49	...	...	...	...	56	55	1
July ,, ...	5	5	...	40	40	...	...	...	...	45	45	...
August 1879	7	6	1	39	39	...	...	...	...	46	45	1
September 1879...	7	7	...	36	36	...	...	...	...	43	43	...
October ,, ...	3	2	1	40	39	1	4	2	2	47	43	4
November ,, ...	6	6	...	37	37	...	...	...	...	43	43	...
December ,, ...	4	4	...	39	37	2	1	1	...	44	42	2
January 1880	6	6	...	35	35	...	6	6	...	47	47	...
February ,, ...	5	5	...	39	34	5	5	5	...	49	44	5
March ,, ...	6	5	1	38	36	2	6	6	...	50	47	3
Total ...	66	62	4	509	488	12	22	20	2	588	570	18

In Poona 66 heifers were inoculated and without result in 4 only. They were purchased for Rs. 218-6-0 and were kept by the Municipality, not by the vaccinator as heretofore. The cost of coolies employed in conveying them from

place to place was Rs. 58-15-0. Their re-sale realized Rs. 104, so the net expenditure amounted to Rs. 173-5-0 against Rs. 293-2-1 last year. The Municipality have passed a resolution prohibiting the use of their heifers beyond Municipal limits without payment, as they bear the entire cost of animal vaccination.

In Bombay 500 heifers were inoculated against 404 during the preceding year on account of the prevalence of small-pox at the commencement of the year and a large attendance of persons at the stations. On 12 heifers the operations proved unsuccessful. Three calves were inoculated successfully with the Brussel's cow-lymph received from Dr. Warlomont. The total cost was Rs. 2,718-10-2, whilst last year it was Rs. 2,252-12-7.

In Kurrachee, since the introduction of the Compulsory Act (IV. of 1879), 22 heifers were inoculated and in two instances it failed: the total cost was Rs. 64. Except in Bombay where animal lymph only is kept up and in Poona and Kurrachee where both animal and human lymph were in use, vaccination in all other places was carried on from arm to arm and with human lymph. On the whole, the number of heifers inoculated was 588, and in 18 it failed: the total cost was Rs. 2,955-15-2.

Expenditure.

39. The total expenditure on account of vaccination may be seen from the following table :—

Establishment.	Total Expenditure.		Compared with the preceding year.
	1879-80.	1878-79.	Increase.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Provincial	1,07,315 2 8	1,01,945 15 0	5,369 3 8
Municipal	19,222 14 11	17,639 0 1	1,583 14 10
Cantonment...	326 7 0	319 8 0	6 15 0
Local Fund	66,962 0 8	66,522 3 0	439 13 8
Native State...	48,809 0 7	47,278 2 10	1,530 13 9
Total ...	2,42,635 9 10	2,33,704 12 11	8,930 12 11

Increase of Expenditure.

The increase under "Provincial Funds" is chiefly due to an higher rate of pay drawn by the Deputy Sanitary Commissioner, Konkan Registration District, during 10 months of the year, he being a permanent incumbent and a Surgeon-Major over twelve years' service. Last year this District was, for 11 months of the year, in charge of officers below that rank, and consequently the annual expenditure was less, being Rs. 13,521-15-8 against Rs. 17,685-8-9 for this year. The increase under "Municipal" is owing to the increase of establishment in Sind since the introduction of the Compulsory Vaccination Act (No. IV. of 1879) at Kurrachee. The slight increase under "Cantonment" is incidental. The increase under "Local Funds" is due to an increase of 2 vaccinators in the Konkan and 1 in Eastern Gujarát; and that under "Native States" is chiefly due to the inclusion of expenditure in the Jamkhandi State: this was not furnished last year and had to be omitted. It is also due to additional expenditure in Western Gujarát, which amounted to Rs. 15,038-7-4 against Rs. 14,321-8-10 last year.

Cost of each successful case including all charges.

40. The total cost for the whole Presidency, including all charges, was Rs. 2,42,635-9-10, and the successful cases, excluding dispensaries and the army, were 579,601. The average cost per each successful case was annas 6-8, the same as last year.

Cost of each successful case after deducting the pay of the Supervising Officers by Districts and Circles.

41. The total cost and the cost per each successful case, after deducting the pay of the Deputy Sanitary Commissioners and Superintendents, is shown in the following table by Districts and Circles compared with that for 1878-79 :—

Names of Districts and Circles.	Names of Deputy Sanitary Commissioners and Superintendents.	Successfully Vaccinated and Re-vaccinated.	Total Cost excluding the pay of Deputy Sanitary Commissioners and Superintendents.	Average Cost of each Successful Vaccination.	Number of Vaccinators.
			Rs. a. p.	Rs. a. p.	
Northern Deccan Registration District. 1879-80	Drs. W. Nolan and J. Parker	98,895	34,206 5 8	0 5 6	77
1878-79		88,673	33,033 15 5	0 6 0	71
Southern Deccan Registration District. 1879-80	Drs. J. P. Greany, H. A. Lewis, and J. W. Clarkson.	86,823	33,828 4 3	0 6 3	80
1878-79		80,857	33,355 3 7	0 6 7	83
Konkan Registration District. 1879-80	Drs. T. Cody and O. H. Channer	70,573	22,895 15 2	0 5 2	47
1878-79		65,585	22,331 3 6	0 5 5	45
Presidency Circle 1879-80	Dr. Ananta Chandroba	12,501	9,108 8 1	0 11 8	9
1878-79		10,822	8,643 5 6	0 12 9	9
Eastern Gujarát Registration District. 1879-80	Dr. M. B. Colah	84,621	26,308 0 7	0 5 0	61
1878-79		93,740	26,648 13 7	0 4 7	61
Western Gujarát Circle .. 1879-80	Drs. R. Batty and J. T. Welsh	61,492	22,161 12 1	0 5 9	43
1878-79		67,548	20,510 12 4	0 4 10	43
Sind Registration District .. 1879-80	Drs. J. Parker, A. W. G. Adey and C. W. MacRury.	102,423	28,862 0 3	0 4 6	53
1878-79		95,636	28,387 15 11	0 4 9	51
Baroda 1879-80	Dr. Bhalchandra Krishna	47,295	11,577 10 4	0 3 11	31
1878-79		43,909	11,558 14 4	0 4 3	31
Cutch 1879-80	Dr. Dorabji Hormusji	14,294	6,466 11 1	0 6 9	15
1878-79		10,715	6,354 8 7	0 9 6	15
Aden 1879-80	Dr. J. Macgregor	784	360 0 0	0 7 4	1
1878-79		665	360 0 0	0 8 8	1
Total .. 1879-80		579,601	1,95,775 3 6	0 5 5	417
1878-79		558,150	1,91,184 12 9	0 5 6	410

The cost per each successful case was less than last year in all the Districts and Circles, except Eastern and Western Gujarát. The total cost was Rs. 1,95,775-3-6, which, when divided amongst 579,601 successful cases, amounts to annas 5-5, or 1 pie less than for the previous year.

Work of Deputy Sanitary Commissioners and Superintendents of Vaccination.

42. The inspectorial work performed by the Supervising Officers may be seen from the table annexed:—

Names of Districts and Circles.	Names of Deputy Sanitary Commissioners and Superintendents.	Number of Encampments.	Number of Travelling days.	Distance travelled in Miles.	Number of Villages visited.	Number of Vaccinated Children inspected.
Northern Deccan Registration District. 1879-80	Drs. W. Nolan and J. Parker	52	199	2,881½	236	9,486
1878-79		62	104	2,636	166	7,108
Southern Deccan Registration District. 1879-80	Drs. J. P. Greany, H. A. Lewis and J. W. Clarkson.	68	123	1,447½	147	6,613
1878-79		72	80	1,105	62	7,380
Konkan Registration District. 1879-80	Drs. T. Cody and O. H. Channer	26	63	813	87	4,557
1878-79		45	111	1,282	352	16,795
Eastern Gujarát Registration District. 1879-80	Dr. M. B. Colah	55	159	2,114	353	7,705
1878-79		53	155	1,629	411	8,480
Western Gujarát Circle .. 1879-80	Drs. R. Batty and J. T. Welsh	44	78	809	131	4,373
1878-79		55	108	1,133	201	6,677
Sind Registration District .. 1879-80	Drs. J. Parker, A. W. G. Adey and C. W. MacRury.	49	64	1,282	427	17,461
1878-79		39	63	1,191	243	9,134
Total .. 1879-80		294	686	9,346¾	1,381	50,195
1878-79		326	621	8,976	1,436	55,524

In Sind the greatest number of children inspected was 17,461 against 9,134 last year; while in the Konkan there were only 4,557 against 16,775. This may be set down to the exigencies of the service, which required that Dr. Cody, the Deputy Sanitary Commissioner for the Konkan, should act as Secretary to the Surgeon General, Indian Medical Department. The Officer to act for him was Dr. Channer, who had acted previously in the Northern Deccan, but he unfortunately was on the Frontier, where he had been acting for Dr. MacRury, ordered away on special duty, and there was considerable delay in his taking up the duties. For Western Gujarát the number was less even than that in the Konkan, and it may be attributed, in a great measure, to the diminution of population on account of the scarcity of food during the last two years; in the Southern Deccan fewer children were seen in more than double the number of villages; and in Eastern Gujarát fewer were seen and fewer villages visited. The Deputy Sanitary Commissioner of that District was on special duty for nearly two months in

connexion with the distress prevalent in Dholera. Although the total numbers for villages and children do not compare favourably with those of last year, they are more than those in 1876-77 and 1877-78, when they were respectively 1,222, 1,269 and 43,112, 46,843.

Districts and Circles.	Work tested by calling names from Registers.											
	Number of Vaccinated Children inspected.	Present during Inspection. Successful. Good.	Middling.	Bad.	Unsuccessful.	Absent during Inspection. Absence accounted for.	Absence Unaccounted for.	Number of Persons whom the Vaccinator has returned as Vaccinated. Successful.	Unsuccessful and doubtful.	Unknown.	Total.	Excess of operations over Persons.
Northern Deccan Registration District	1879-80. 8,065	6,737	621	334	373	9,494	..	16,945	382	295	17,622	63
	1878-79. 4,674	4,049	256	35	334	3,528	..	7,846	238	146	8,230	28
Southern Deccan Registration District	1879-80. 3,875	3,342	459	382	192	3,067	..	6,420	286	240	6,946	4
	1878-79. 1,389	1,299	37	2	51	2,160	..	3,377	87	91	3,555	6
Konkan Registration District..	1879-80. 3,962	3,244	367	147	204	1,490	..	4,641	676	135	5,452	..
	1878-79. 14,605	11,289	1,566	999	751	9,131	..	23,261	431	63	23,755	19
Eastern Gujarát Registration District	1879-80. 7,630	4,034	2,827	537	232	2,204	..	9,388	348	152	9,888	54
	1878-79. 8,360	3,744	3,629	636	351	2,932	..	10,653	526	207	11,386	94
Western Gujarát Circle.. ..	1879-80. 2,128	1,568	250	201	109	1,386	14	3,205	169	154	3,528	..
	1878-79. 2,926	2,141	447	241	97	2,587	1	4,869	330	315	5,514	..
Sind Registration District ..	1879-80. 3,173	1,426	1,227	395	125	2,534	7	5,333	174	219	5,726	12
	1878-79. 3,497	2,004	982	441	70	1,752	..	5,060	90	112	5,262	13
Total..	1879-80. 28,833	19,851	5,751	1,996	1,235	20,175	21	45,932	2,035	1,195	49,162	133
	1878-79. 35,451	24,526	6,917	2,354	1,654	22,090	1	55,066	1,702	934	57,702	160

Inspections from Vaccination Registers.

43. It may be seen from the above table, that for 50,195 children the results in 28,833 instances were tested by calling their names from Registers, in which there were enrolled the names of 49,029 children, of whom 133 were vaccinated more than once on failure of the first operation. The results given by vaccinators were 45,932 as successful, 1,902 unsuccessful, exclusive of 133 secondary operations and 1,195 unknown; while on inspection they were found to be 27,598, 1,235 and 20,196. Excluding the "unknown," or rather the number of children "absent" at the time of inspection from both sides, the vaccinators' figures give the percentages of 96·02 as successful and 3·98 as unsuccessful; while the inspection figures give them as 95·72 and 4·28. This test establishes the truthfulness of the result noted by vaccinators. Again, out of 27,598 or 95·72 successful children, there were 19,851 or 68·65 who had "good" cicatrices on their arms, 5,751 or 19·95 "middling" and 1,996 or 6·92 "bad," which show the degree of protection afforded. The greatest number of inspections was in the Northern Deccan and Eastern Gujarát, and the least in Western Gujarát and Sind. The number of children whose arms were inspected without the register test were 21,362, of whom 14,288 were in Sind: rather more than double the number in all the remaining Districts together.

Truthfulness of Vaccination Registers.

Classification of successful cases.

Inspections without Vaccination Registers.

Remarks on the work of the Supervising Officers.

44. With such constant changes it is impossible to remark on individual efforts, but I trust it will be acknowledged that all have worked zealously and conscientiously.

Work of Inspectors and Assistant Superintendents.

45. The work of Inspectors and Assistant Superintendents of Vaccination is detailed by Districts and Circles in the table on the opposite page.

There were 31 Inspectors and 4 Assistant Superintendents on travelling duty. Of this number 27 Inspectors and 2 Assistant Superintendents were paid by Government and the others by Native States. The names of 306,256 children were called from the Registers and 229,805 were present, 75,859 were absent but known to be absent, and 592 could not be accounted for, as they had migrated. Out of 229,805 children inspected, 216,967 or 94·41 per cent. were protected, and in 12,838 cases or 5·59 per cent. the operation had been unsuccessful. Again, out of 216,967 or 94·41 per cent. successful cases, 151,971 or

Districts and Circles.	Number of Encampments.	Number of travelling days.	Distance travelled in miles.	Number of Villages visited.	Work tested by calling names from Registers.										
					Number of Vaccinated Children inspected.	Present during Inspection. Successful. Character of Vesicles and Cicatrices. Good.	Middling.	Bad.	Unsuccessful.	Absent during Inspection. Absence accounted for.	Absence unaccounted for.	Number of Persons whom the Vaccinator has returned as Vaccinated. Successful.	Unsuccessful and doubtful.	Unknown.	Total.	Excess of Operations over Persons.
Northern Deccan Registration District.	1879-80. 1,094	1,750	12,959	1,845	38,697	33,412	2,354	761	2,170	17,335	..	53,283	1,224	1,529	56,036	4
	1878-79. 1,183	1,700	14,528	2,391	46,714	39,839	2,972	1,100	2,803	24,981	..	69,336	1,226	1,133	7,1695	..
Southern Deccan Registration District.	1879-80. 969	1,371	10,990½	2,718	46,663	38,754	4,887	1,200	1,822	15,576	64	59,794	1,182	1,442	62,418	115
	1878-79. 1,075	1,568	13,262½	3,005	53,910	44,427	5,552	1,546	2,385	24,803	19	74,824	1,634	2,457	78,915	183
Konkan Registration District.	1879-80. 732	1,054	8,743	1,081	24,264	16,838	3,302	1,784	2,310	4,702	7	27,289	1,237	488	29,014	41
	1878-79. 669	1,045	8,550	1,199	24,543	17,545	3,717	1,525	1,752	4,947	35	27,979	1,228	393	29,600	75
Eastern Gujárat Registration District.	1879-80. 354	1,157	11,227	2,200	33,714	15,211	13,692	3,865	946	7,813	118	40,075	1,034	661	41,770	125
	1878-79. 299	1,126	11,483	1,961	32,550	12,676	13,492	4,960	1,422	9,193	1	39,818	1,507	703	42,028	284
Western Gujarát Circle.	1879-80. 244	532	3,205	582	11,234	7,323	2,378	1,075	458	5,114	82	14,613	1,144	781	16,538	108
	1878-79. 261	540	3,755	539	11,974	7,750	2,486	1,236	502	5,642	7	15,721	1,104	807	17,632	9
Sind Registration District.	1879-80. 740	1,270	15,676	2,475	35,260	10,944	12,180	8,624	3,512	19, 674	298	49,420	3,020	2,930	55,428	196
	1878-79. 842	1,063	12,864	1,926	27,294	6.969	10,328	7,389	2,608	14,507	48	36,907	2,528	2,519	41,954	105
tch.. ..	1879-80. 162	249	1,910	480	11,532	7,104	1,519	1,462	1,453	1,320	17	11,061	939	869	12,869	..
	1878-79. 109	187	1,090	264	7,588	..	..	..	..	..	..	..	..	..	..	..
Baroda ..	1879-80. 852	927	7,934	1,399	28,441	22,385	3,589	2,330	137	4,325	6	31,372	970	430	32,772	..
	1878-79. 931	1,055	7,875	1,465	27,555	..	..	..	..	..	..	..	..	..	..	..
Total ..	1879-80. 5,147	8,310	71,744½	12,780	229,805	151,971	43,895	21,101	12,838	75,859	592	286,915	10,750	9,180	306,845	589
	1878-79. 5,369	8284	73,407½	12,750	{ 196,985 35,143 }	129.206	38,547	17,760	11,472	84,073	110	264,585	9,227	8,012	281,824	651

66·13 per 100 had "good" cicatrices, 43,895 or 19·10 "middling," and 21,101 or 9·18 "bad." In the Registers tested, vaccinators had entered the results as 286,915 successful; 10,750 unsuccessful; 9,180 unknown or absent; and 589 secondary operations. Excluding the unknown and secondary operations from calculation, to compare this result with that of inspection, the percentages of successful and unsuccessful cases are respectively 96·58 and 3·42. The rate of travelling was quicker than last year in the Konkan, Sind and Cutch, and the number of villages seen was greater in Eastern and Western Gujarát, Sind and Cutch. The least number of villages seen is in the Northern and Southern Deccan, where the respective numbers were 1,845 and 2,718; whilst in 1878-79 they were 2,391 and 3,005. On the whole, the rate of travelling was slower, but the number of villages inspected was greater than last year by 30 only. Three Inspectors retired on pension—1 in the Northern Deccan, 1 in the Konkan, and 1 in Sind. One Inspector died in Sind and 1 was transferred from the Kurrachee to the Shikárpur District. Two Inspectors were promoted from 3rd to 2nd Class in Eastern Gujarát and Sind, and 1 Inspector in Sind was appointed as a Superintendent of Vaccination under the Kurrachee Vaccination Act (No. IV of 1879). The conduct of all these Inspecting Officers was reported as good and satisfactory.

Their conduct.

46. Taking the work of all the Deputy Sanitary Commissioners, Superintendents, Assistant Superintendents and Inspectors together, there were 5,441 encampments; 81,091 miles travelled in 8,996 days; and 280,000 children inspected in 14,161 villages. Out of every 100 persons operated on, 43·10 were this year inspected against 45·58 in the preceding year, and 35·53 in 1877-78.

Total Inspections.

47. Fourteen vaccinators were dismissed the service—2 in the Southern Deccan for negligence of work; 1 in the Konkan for having brought himself under the penalty of the law; 4 in Eastern Gujarát (1 for inefficiency, 2 for negligence of work, and 1 for misconduct); 2 in the Presidency Circle for inefficiency and neglect of work; 3 in Western Gujarát (1 for falsification of returns, 1 for negligence of work, and 1

Conduct of Vaccinators.

for having been absent without leave); 1 in Sind for disobedience of orders; and 1 in Cutch for falsification of returns. Four vaccinators died—2 in the Northern Deccan and 2 in Eastern Gujarát. Four vaccinators resigned the service—1 in the Northern Deccan; 1 in Eastern Gujarát; and 2 in Sind. Twenty-seven vaccinators were transferred—4 in the Northern and 10 in the Southern Deccan; 1 in the Konkan; 1 in Eastern Gujarát and 11 in Sind. 19 vaccinators were promoted—2 in the Northern and 1 in the Southern Deccan; 1 in the Konkan; 3 in the Presidency Circle, of whom 1 was appointed as a second clerk; 2 in the Eastern Gujarát; and 10 in Sind, of whom 2 were appointed Inspectors. One in the Southern Deccan was remanded from an higher appointment to his former place. There were six new appointments—2 in the Konkan; 1 in Eastern Gujarát; and 3 in Sind. Seven vaccinatorships were abolished—4 in the Southern Deccan; 1 in Eastern Gujarát; and 1 in Sind. The conduct of the vaccinators, generally, was good.

Clerks.

48. Four clerks (1 in the Northern Deccan, 1 in the Konkan and 2 in Sind) were promoted—3 to third class Inspectorships and 1 in Sind from a second clerkship to Head clerk. One in Sind resigned, and 1 was transferred from the Presidency Circle to the Konkan District. All the clerks have worked to the entire satisfaction of their superiors.

Inoculation.

49. Inoculation was reported to have been practised amongst the hill-tribes inhabiting the north of the Mahi Kántha, in the Eastern Gujarát District; in the Rohri Division, Shikárpur District, and in the Upper Sind Frontier District. This was duly brought to notice in the proper quarters.

Ill-effects by Vaccination.

50. No instances were reported of any other disease but cow-pox having been communicated through vaccination.

Aid from Civil, Revenue, and Political Officers.

51. The Civil, Revenue, and Political Officers have rendered their aid, when required, to all the Officers of this Department.

Small-pox by Collectorates and Registration Districts.

52. The table on the opposite page shows the deaths from small-pox for the years 1879-80 and 1878-79, as well as the ages of the deceased and the number of persons successfully operated on in each District of the Bombay Presidency.

In Dhárwár there was no death from small-pox and only one in each of the following Districts, *viz.*—Sholápur, Kánara, Broach, and Panch Maháls. For Násik, Ahmednagar, Sátára, Belgaum, Kaládgi, Thána, Surat, Kaira, and Thar and Párkar, they were from 1 to 10. In Bombay, Kurrachee, Shikárpur and Upper Sind Frontier, there were more deaths from small-pox than last year. On the whole, there were 1,202 deaths against 2,505 in 1878-79, and the number of successful operations was 409,230; whilst last year it was 388,139. There is a marked diminition for Eastern Gujarát in the number of deaths: only 27 against 1,024 last year. As regards ages there were 279 infants, 527 children under 12 years and 396 persons of all other ages returned under small-pox deaths; last year the respective numbers were 789, 1,201 and 515. In Western Gujarát cases of small-pox were reported to have occurred in the towns of Bhávnagar, Mohuwa, Jáfarabad and Pálitána, and in seven villages—one each in Sihor, Verával and Dántivara, and two each in Botád and Tharád. Baroda and Cutch were entirely free this year. In Aden there were 25 deaths out of 94 cases, chiefly in January and February. Thirty were imported cases. Small-pox prevailed also throughout the Persian Gulf. In Bassadore there were only 4 cases, of which 1 proved fatal. The disease was said to have been imported from Linga.

Small-pox occurring after Vaccination.

53. Two cases of small-pox of a modified character, occurring after vaccination, were reported from Sávda, Khándesh District. A few such cases were also noticed by some of the vaccinators in Sind.

Progress in the Northern Deccan Registration District.

54. The Northern Deccan Registration District extends over an area of 38,614 square miles, comprising the Collectorates of Khándesh, Násik, Ahmednagar, Poona and Sholápur and the Native States of the Khándesh Agency, Akalkot

No.		Districts and Circles.	Years.	Deaths from Small-pox.			Number of Persons successfully Operated on.
				Total Deaths.	Ages.		
					Under 1 Year.	Under 12 Years.	
1	Northern Deccan Registration District.	Khándesh Collectorate	1879-80	19	2	8	30,085
			1878-79	246	29	102	28,881
2		Násik do.	1879-80	6	.....	.....	18,446
			1878-79	38	9	14	14,437
3		Ahmednagar do.	1879-80	2	1	.....	18,746
			1878-79	19	.....	3	16,810
4		Poona do.	1879-80	11	.....	4	18,063
			1878-79	41	13	8	16,905
5		Sholápur do.	1879-80	1	.....	.....	15,669
			1878-79	4	.....	2	11,756
		Total ...	1879-80	39	3	12	101,009
			1878-79	348	42	129	88,789
6	Southern Deccan Registration District.	Sátára Collectorate	1879-80	5	3	1	25,984
			1878-79	33	19	13	24,664
7		Belgaum do.	1879-80	7	1	5	15,475
			1878-79	37	8	16	13,374
8		Dhárwár do.	1879-80	.....	.....	.....	12,447
			1878-79	37	9	17	12,024
9		Kaládgi do.	1879-80	7	.....	1	9,561
			1878-79	15	2	3	9,955
		Total ...	1879-80	19	4	7	63,467
			1878-79	122	38	49	60,017
10	Konkan Registration District.	Kánara Collectorate	1879-80	1	.....	.....	10,463
			1878-79	23	1	7	8,843
11		Ratnágiri do.	1879-80	22	2	2	24,928
			1878-79	64	8	12	25,601
12		Kolába do.	1879-80	49	8	16	7,989
			1878-79	70	14	24	7,780
13		Thána do.	1879-80	5	1	1	21,386
			1878-79	46	12	27	19,020
		Total ...	1879-80	77	11	19	64,766
			1878-79	203	35	70	61,244
14	Presidency Circle.	Bombay City	1879-80	410	144	222	12,501
			1878-79	387	157	193	10,822
15	Eastern Gujarát Registration District.	Surat Collectorate	1879-80	2	1	1	15,212
			1878-79	39	12	15	14,754
16		Broach do.	1879-80	1	1	.....	6,399
			1878-79	49	17	27	7,170
17		Kaira do.	1879-80	4	1	2	18,420
			1878-79	433	183	240	20,782
18		Panch Maháls	1879-80	1	1	.....	5,234
			1878-79	164	68	86	6,711
19		Ahmedabad	1879-80	19	5	5	18,830
			1878-79	339	145	173	22,299
		Total ...	1879-80	27	9	8	64,095
			1878-79	1,024	425	541	71,716
20	Sind Registration District.	Kurrachee Collectorate	1879-80	60	4	29	21,241
			1878-79	5	.....	2	23,125
21		Hyderabad do.	1879-80	46	8	19	23,132
			1878-79	105	12	67	23,244
22		Thar and Párkar	1879-80	9	2	4	10,858
			1878-79	12	3	6	9,953
23		Shikárpur Collectorate	1879-80	421	80	160	40,144
			1878-79	278	76	135	34,238
24		Upper Sind Frontier	1879-80	94	14	47	7,988
			1878-79	21	1	9	4,991
		Total ...	1879-80	630	108	259	103,393
			1878-79	421	92	219	95,551
		Grand Total ...	1879-80	1,202	279	527	409,230
			1878-79	2,505	789	1201	388,139

and Modnimb. It has a population of 4,296,187. It was administered by a Deputy Sanitary Commissioner, who had under him 7 Inspectors of Sanitation and Vaccination, 2 Clerks, 9 Municipal, 1 Cantonment, 66 Local Fund and 1 Native State Vaccinator and 86 Peons. Three additional vaccinators for two towns and one rural circle would strengthen the establishment. Vaccination returns were received from 27 Dispensaries. Each vaccinator, on an average, worked amongst a population of 55,795 souls and in an area of 501 square miles. They primarily vaccinated 98,809, and re-vaccinated 5,357 persons; last year the respective numbers were 90,798 and 1,111. There were 95,530 or 96·68 per cent. successful cases under primary vaccinations and 3,365 or 62·81 per cent. under re-vaccinations. These together give the total rate of protection as 23·02 per mille of population, whilst last year it was 20·64. The total cost was Rs. 39,687-13-0, and the average cost per each successful case was annas 6 and pies 5, or 7 pies less than in the preceding year. Each vaccinator averaged 1,353 persons. The dispensary officers returned 4,100 persons primarily vaccinated and 34 re-vaccinated against 3,117 and 39 in 1878-79. There were 39 deaths from small-pox; whilst last year there were 348.

Khándesh Collectorate.

55. The Khándesh Collectorate has an area of 9,802 square miles and a population of 1,028,642 souls. There were 25 vaccinators employed in it. They primarily vaccinated 28,829 persons and in 28,274 instances or 99·60 per cent. were successful: they re-vaccinated 613 persons and in 438 cases or 71·45 per cent. were successful. The rate of protection per mille of population was 27·91 against 26·98 in 1878-79. The total cost of vaccination was Rs. 6,023-1-10 or annas 3 and pies 4, or 3 pies more than last year per each successful case. The average number of operations per each vaccinator was 1,178. The medical officers of 8 dispensaries attended to vaccination work which amounted to 1,433 and 15 persons under each kind of operation. Small-pox carried off 19 persons against 246 in the preceding year.

Násik Collectorate.

56. The Násik Collectorate has an area of 8,140 square miles and a population of 734,386. There were 13 vaccinators in it and one other is required for the town of Yeola. There were 17,458 primary vaccinations and 1,106 re-vaccinations; and 16,827 and 759 or 96·38 and 68·63 per cent. were successful. The rate per mille of population protected was 23·95, whilst last year it was 19·93. The total cost was Rs. 3,749-13-0 or annas 3 and pies 5 or 10 pies less than last year per each successful case. Each vaccinator vaccinated 1,428 persons. In 7 dispensaries, 929 and 9 persons were vaccinated under each kind of operation. There were 6 deaths against 38 in the preceding year.

Ahmednagar Collectorate.

57. The Ahmednagar Collectorate has a population of 773,938 in an area of 6,647 square miles. It had 12 vaccinators and one other has been entertained since 1st April 1880 for the adjoining portions of Sangamner and Parner Tálukas. There were 18,269 primary vaccinations and 268 re-vaccinations, and the successful cases were respectively 18,048 and 157, whilst the percentages of success were 98·79 and 58·58. The rate per 1,000 of protected was 23·52 against 21·43 last year. Each vaccinator vaccinated 1,545 persons. The total cost was Rs. 3,435-7-0 and the average cost for each successful case was annas 3, whilst last year it was annas 3-6. The medical officers of three dispensaries primarily vaccinated 564 persons and re-vaccinated one. There were only 2 deaths; last year there were 19.

Poona Collectorate.

58. The Collectorate of Poona has an area of 5,099 square miles and a population of 907,235. There were 14 vaccinators, as last year, and 2 more are required; one for the town of Junnar and one for the Khed Táluka. Out of 16,857 primary vaccinations and 1,483 re-vaccinations 16,368 or 97·09 and 699 or 46·46 per cent. were successful. The rate per mille of population protected was 18·81 against 17·78 last year. Each vaccinator has, on an average, operated on 1,310 persons. The total cost was Rs. 4,172-3-5. This gives the average cost per each successful case as annas 3-11, against annas 4-2 last year. In 9 dispensaries 1,145 persons were primarily vaccinated and 9 were re-vaccinated. The small-pox deaths were 11 against 41 last year.

Sholápur Collectorate.

59. The Sholápur Collectorate had 12 vaccinators who worked in an area of 4,499 square miles and a population of 718,034. There were 15,726 primary vaccinations and 1,749 re-vaccinations; of these 14,466 and 1,203 or 91·99 and 68·78 were successful. The rate per mille of population protected was 21·82 against 16·37 in 1878-79. Each vaccinator vaccinated 1,456 persons. The total cost was Rs. 3,550-11-5, which gives annas 3-8 as the average cost per each successful case. Last year it was annas 4-10. Vaccination was not practised in any of the dispensaries of this collectorate. There was 1 death from small-pox against 4 in the preceding year.

Native States in the Northern Deccan Registration District.

60. The Native States are the Dang Territory, Akalkot and Modnimb which belongs to the Miraj State. They have a collective population of 133,952 and an area of 4,427 square miles. A vaccinator was sent to the Dang Territory on 1st May 1879, but the opposition being too strong he was withdrawn and transferred to British Territory. In Modnimb vaccination is carried on by the Mádha Táluka vaccinator of the Sholápur Zilla, as it is close to that Táluka. He is paid Rs. 5 per month by the Miraj State. The Akalkot State has one vaccinator, and the medical officer of the Akalkot dispensary attends to the vaccination work of that town. The total number operated on in the two States, excluding the dispensary, was 1,808, of which 138 were re-vaccinations. The successful cases were 1,547 or 92·63 per cent. and 109 or 78·98 per cent. under each kind of operation. The rate of protection per 1,000 was 12·36 against 15·26 last year. The total cost was Rs. 381-12 or annas 3-8 per each successful case. In the Akalkot dispensary 29 persons were primarily vaccinated.

Progress in the Southern Deccan Registration District.

61. The Southern Deccan Registration District comprises the Collectorates of Sátára, Belgaum, Dhárwár and Kaládgi, the Kolhápur States, the Sátára and the Southern Marátha Jághírs and the Savanúr State under the Dhárwár Agency. It has a population of 5,554,665 and an area of 23,021 square miles. It was administered by a Deputy Sanitary Commissioner who had under him 6 Inspectors of Sanitation and Vaccination, 1 Assistant Superintendent of Vaccination, 2 Clerks, 7 Municipal, 43 Local Fund and 30 Native State Vaccinators and 90 Peons. Vaccination was carried on by the Medical Officers of 19 Dispensaries. Eleven additional vaccinators for four towns, three rural circles and four native states, would strengthen the establishment. Each vaccinator had an area of 350 square miles, with an average population of 69,433 souls. They primarily vaccinated 89,237 and re-vaccinated 1,762 persons, and last year the respective numbers were 84,251 and 1,281. There were 85,424 or 95·73 per cent. successful primary vaccinations and 1,399 or 79·40 per cent. re-vaccinations; the rate of protection per mille of population being 15·63 against 14·56 last year. The total cost was Rs. 37,312-0-5 and the average cost per each successful case was annas 6 and pies 11, or 8 pies less than last year. Each vaccinator vaccinated 1,137 persons. In the dispensaries 3,344 persons were primarily vaccinated and 325 were re-vaccinated. There were 19 deaths against 122 last year.

Sátára Collectorate.

62. The Sátára Collectorate has a population of 1,061,002 and an area of 4,804 square miles. There were 14 vaccinators and 2 others are required for the towns of Karád and Wái. There were 24,552 persons primarily vaccinated and 596 re-vaccinated. The successful cases in each were 24,051 or 97·96 and 553 or 92·78 per cent. The rate of protection per mille of population was 23·19 against 21·93 in 1878-79. Each vaccinator vaccinated 1,796 persons. The total cost was Rs. 4,145-12-7 or annas 2-3 per each successful case against annas 3-2 in the preceding year. In 8 dispensaries 1,446 persons were primarily vaccinated and 20 were re-vaccinated. There were 9 deaths against 33 last year.

Belgaum Collectorate.

63. The Belgaum Collectorate has an area of 4,592 square miles and a population of 938,750. There were 12 vaccinators and 2 more are required for the towns of Gokák and Athni. The number of persons under each kind of operation was 14,996 and 293. The successful cases were 14,731 and 245, the percentages of

success being 98·23 and 83·62 or 15·95 per mille of population against 13·92 for last year. Each vaccinator vaccinated 1,274 persons. The total cost was Rs. 3,438-12-2 or annas 3·8 per each successful case; last year it amounted to annas 4-2. In three dispensaries 533 persons were primarily vaccinated and 36 re-vaccinated. There were 7 deaths against 37 last year.

Dhárwár Collectorate.

64. The Dhárwár Collectorate has an area of 4,565 square miles and a population of 988,037. There were in all 14 vaccinators and 4 more have been entertained since 1st April 1880. There were 13,179 persons primarily vaccinated and 333 re-vaccinated. The successful cases in each were 12,252 and 195 or 92·91 and 58·56 per cent. Out of every 1,000 persons 12·60 were successfully vaccinated against 12·16 in 1878-79. The average number of vaccinations performed by each vaccinator was 965. The total cost was Rs. 3,909-7-10 or annas 5 per each successful case; last year it was annas 5-6. In only one dispensary (Hubli) 12 persons were primarily vaccinated unsuccessfully. There were no deaths; whilst last year there were 37.

Kaládgi Collectorate.

65. The Kaládgi Collectorate has an area of 5,696 square miles and a population of 816,037. It had 10 vaccinators. The two vaccinatorships in the towns of Bijápur and Guledgudd, (each having a population of more than 10,000) were unfortunately abolished for want of funds in 1878-79, and one was similarly abolished in Ilkal town during the year under report. The Bágalkot town vaccinator attends to the vaccination work in the surrounding villages of the Táluka besides the town, and consequently a moiety of his pay is defrayed by the Municipality as well as by the Local Fund Committee. At least three additional vaccinators are required for the Tálukas of Hungund, Bádámi and Indi. The number of persons primarily vaccinated was 9,784 and those re-vaccinated were 277. The successful cases in each were 9,218 or 94·21 and 243 or 87·73 per cent. The rate of protection per mille of population was 11·59 against 12·20 in the preceding year. This result is far below the standard and it is chiefly owing to the reduced number of vaccinators. The average number of vaccinations performed by each vaccinator was 1,006 persons. The total cost was Rs. 2,808-4-9 or annas 4-9 per each successful case against annas 5-2 in 1878-79. Vaccination was carried on in 3 dispensaries at Ilkal, Bijápur and Mudebihál, but the number of persons primarily vaccinated was only 136 and those re-vaccinated were only 2. There were 7 deaths against 15 last year.

Native States in the Southern Deccan Registration District.

66. The States of Kolhápur, the Sátára and the Southern Maratha Jághírs and the Savanúr State under the Dhárwár Agency have a collective area of 8,364 square miles and a population of 1,750,839. There were 30 vaccinators, but 4 more are required for Gad Hinglaj, Panála and Kolhápur Petha in the Kolhápur States and for Sángli Táluka in the Sángli States. The Kolhápur States have 1 Assistant Superintendent of Vaccination and the Jamkhandi State has employed since last year an Inspector of Sanitation and Vaccination. There were 26,726 persons primarily vaccinated and 263 re-vaccinated. The successful cases of each kind were 25,172 and 163. The percentages of success were respectively 94·18 and 61·98. The rate per mille of population protected was 14·47 against 12·66 for last year. Each vaccinator, on an average, vaccinated 900 persons. The total cost was Rs. 8,684-7-5 or annas 5-6 per each successful case. In 4 dispensaries at Kolhápur, Gad Hinglaj, Mudhol and Miraj 1,217 persons were primarily vaccinated and 267 were re-vaccinated.

Progress in the Konkan Registration District.

67. The Konkan Registration District comprises the Collectorates of Kánara, Ratnágiri, Kolába and Thána, the Native States of Sávantvádi, Janjira and Jawhár, a population of 2,915,587 and an area of 15,143 square miles. It was administrated by a Deputy Sanitary Commissioner, who had under him 4 Inspectors of Sanitation and Vaccination, 2 Clerks, 2 Municipal, 42 Local Fund and 3 Native State Vaccinators and 58 Peons. Eight additional vaccinators are required, 5 in town, 2 in rural circles and 1 in a native state. Vaccinations

were performed in 24 dispensaries. The area for each vaccinator was 322 square miles, with a population of 62,034 souls. The vaccinators returned 69,196 primary vaccinations and 5,342 re-vaccinations against 63,572 and 7,960 last year. Under each head the successful cases were respectively 66,847 or 96·61 per cent. and 3,726 or 69·75 per cent. There were 24·20 persons per 1,000 of population successfully operated on; whilst last year there were 22·49. The average number of vaccinations performed by each vaccinator was 1,586, and the average cost per each successful case, calculated on the total cost of Rs. 31,682-8-6, was annas 7-2: last year it was annas 6-7. In the Dispensaries 2,375 persons were vaccinated and 144 were re-vaccinated. There were only 37 deaths against 203 in 1878-79.

Kánara Collectorate.

68. The Kánara Collectorate has an area of 4,235 square miles, and has 11 vaccinators, who work amongst 398,406 persons. Two others, for the towns of Kárwár and Kumpta, would strengthen the establishment. Those primarily vaccinated were 9,716 and those re-vaccinated were 808. The number of successful cases were respectively 8,895 and 559, the percentages being 91·55 and 69·19. The rate of protection per mille of population was 23·73; last year it was 21·59. Each vaccinator vaccinated 957 persons. The total cost was Rs. 3,065-2-1 or annas 4-2 per each successful case against annas 6-4 in the previous year. In 9 dispensaries 1,110 persons were primarily vaccinated, and 62 were re-vaccinated. There was only 1 death against 23 last year.

Ratnágiri Collectorate.

69. The Ratnágiri Collectorate has a population of 1,019,136 and an area of 3,789 square miles. There were 13 vaccinators and 2 more are required for the towns of Ratnágiri and Vengurla. The number of primary vaccinations was 22,852 and of re-vaccinations 3,289. The successful cases were respectively 22,449 and 2,423 or 98·24 and 73·67 per cent. The rate of protection per mille of population was 24·45 and last year it was 25·01. The average number of vaccinations for each vaccinator was 2,011. The total cost was Rs. 3,892-5-4 or annas 2-6 per each successful case: last year it was annas 2-5. At the Dápoli dispensary, 59 persons were vaccinated. There were 22 deaths against 64 in 1878-79.

Kolába Collectorate.

70. The Kolába Collectorate has an area of 1,482 square miles and a population of 350,405. It had 5 vaccinators and 2 more are wanted, 1 for the Táluka of Mahád and 1 for the Nagotna Petha. There were 8,007 primary vaccinations and 36 re-vaccinations. The successful cases were 7,761 or 96·93 and 33 or 91·67 per cent. The rate of protection per 1,000 was 22·24 against 21·63 last year. The total cost was Rs. 1,501-14-10. The average cost per successful case was annas 3-1 against annas 3-2 last year. Each vaccinator vaccinated 1,607 persons. In 3 dispensaries 208 persons were primarily vaccinated and 1 was re-vaccinated. There were 49 deaths against 70 in 1878-79.

Thána Collectorate.

71. The Thána Collectorate has a population of 847,424 and an area of 4,052 square miles. It had 15 vaccinators and 1 other is required for the town of Kalyán. Those primarily vaccinated were 20,759 and those re-vaccinated were 424. The successful cases were 20,171 and 401 or 97·17 and 94·57 per cent. The rate of protection per mille of population was 24·27; last year it was 20·55. Each vaccinator vaccinated 1,412 persons. The total cost was Rs. 4,334-15-0 or annas 3-4 per each successful case against annas 3-6 last year. In 10 dispensaries 863 persons were primarily vaccinated and 17 re-vaccinated. There were 5 deaths against 46 in the preceding year.

Native States in the Konkan Registration District.

72. The States of Sávantvádi, Janjira and Jawhár have a collective area of 1,585 square miles and a population of 300,216. There were 3 vaccinators and another is required in the Sávantvádi State. Those primarily vaccinated and re-vaccinated were respectively 7,862 and 785 and the successful cases were 7,571 or 96·30 and 310 or 39·49 per cent. The protected were 26·25 per mille of population against 23·39 last year. Each vaccinator, on an average, operated on 2,882 persons. The total cost amounted to Rs. 1,202-10-6 and the

average cost per each successful case was annas 2-5. The medical officer of Sávantvádi dispensary primarily vaccinated 135 persons and re-vaccinated 64.

Progress in the Presidency Circle.

73. The City of Bombay is the Presidency Circle. It has an area of 22 square miles with a population of 644,405 souls. It was administered by a Superintendent of Vaccination, paid by Government, and under him an Assistant Superintendent, 2 Clerks, 1 Head Vaccinator, 6 Public Vaccinators, and 2 Assistants, and 3 Peons, all paid by the Municipality. Additional kárkúns are required to give due effect to the Bombay Vaccination Act (I of 1877). There were 12,108 primary vaccinations and 2,631 re-vaccinations. The successful cases were respectively 10,890 and 1,611 or 89·94 and 61·23 per cent. The rate per mille of population protected was 19·40 against 16·79 last year. Each vaccinator vaccinated 1,842 persons. The total cost was Rs. 13,308-8-1 or Re. 1-1-0 per each successful case : last year it was Re. 1-3-0 There were 410 deaths against 387 last year.

Progress in the Eastern Gujarát Registration District.

74. The Eastern Gujarát Registration District comprises the Collectorates of Surat, Broach, Kaira, Panch Maháls and Ahmedabad and the Native States of Mahi Kántha, Rewa Kántha, Cambay, the Surat Agency and Jámbughoda. It has a population of 3,977,490 and an area of 19,783 square miles. It was administered by a Deputy Sanitary Commissioner, who had under him 5 Inspectors of Sanitation and Vaccination, 2 Clerks, 7 Municipal, 35 Local Fund and 19 Native State Vaccinators and 68 Peons. The area for each vaccinator was 324 square miles, with a population of 65,205. Eleven more vaccinators are required, 8 for town circles, 1 for a rural circle and 2 for two of the more populous tálukas. Out of 86,149 primary vaccinations and 1,924 re-vaccinations there were 83,543 or 96·97 and 1,078 or 56·03 per cent. successful. The protected were 21·27 per mille of population : last year they were 23·56. Each vaccinator vaccinated 1,444 persons. The total expenditure was Rs. 32,908-0-7 and the average cost per each successful case was annas 6-3 ; whilst last year it was annas 5-8. In 23 dispensaries 3,700 persons were primarily vaccinated and 87 were re-vaccinated. The deaths were 27 against 1,024 last year.

Surat Collectorate.

75. The Collectorate of Surat has an area of 1,588 square miles and a population of 607,087. It had 9 vaccinators and 1 more is required for the town of Bulsár. The number of persons primarily vaccinated was 14,647 and the successful cases were 14,299 or 97·56 per cent. The number of persons re-vaccinated was 245 and the successful cases were 90 or 36·73 per cent. Protection was afforded to 23·70 out of every 1,000 of population : last year the rate was 22·63. Each vaccinator, on an average, operated on 1,655 persons. The total cost was Rs. 2,700-12-3, and the average cost per successful case was annas 3 ; whilst in the preceding year it was annas 3-3. In 7 dispensaries 841 persons were primarily vaccinated and 2 were re-vaccinated. There were 2 deaths and last year there were 39.

Broach Collectorate.

76. The Collectorate of Broach had 6 vaccinators working in a population of 350,322 and in an area of 1,358 square miles. Two additional vaccinators are wanted for the town of Jambusar and for the Hánsot Petha. The primarily vaccinated were 6,249 and the re-vaccinated were 127. Of these the successful cases were 5,978 and 47 respectively, or 95·66 and 37·00 per cent. The rate of protection per 1,000 was 17·20 against 18·86 last year. Each vaccinator vaccinated 1,063 persons and the average cost per each successful case was annas 4-6 calculated on the total cost of Rs. 1,706-6-8 : last year each successful case cost annas 3-8. In 4 dispensaries 393 persons were primarily vaccinated and 2 were re-vaccinated. There was only 1 death ; whilst last year there were 49.

Kaira Collectorate.

77. The Kaira Collectorate has an area of 1,561 square miles and its population is 782,733. There were 9 vaccinators and 5 more are required, 1 in each of the towns of Kaira, Borsad and Kapadvanj and 1 each for the Tálukas of Nariád and Borsad. Out of 17,825 persons primarily vaccinated and 100 re-vaccinated 17,205 or

96·52 and 37 or 37·00 per cent. were successfully operated on. The protected were 22·03 and in 1878-79 they were 24·34 per 1,000 of population. Each vaccinator, on an average, vaccinated 1,992 persons. The total cost amounted to Rs. 2,760-10-2 or annas 2-7 per each successful case: last year it was annas 2-5. In 6 dispensaries there were 1,355 persons primarily vaccinated and 50 re-vaccinated. The deaths were 4, whilst last year they were 433.

Panch Mahâls.

78. The Panch Mahâls have an area of 1,731 square miles and a population of 240,743 souls. There were 5 vaccinators and 2 others are required for the towns of Godhra and Dohad. There were 4,830 primary vaccinations and 442 re-vaccinations. Of these the successful were 4,708 and 293 or 97·47 and 66·29 per cent. The rate of protection per mille of population was 20·77 and in the preceding year it was 25·82. Each vaccinator vaccinated 1,054 persons. The total expenditure was Rs. 1,436-8-9 or annas 4-6 against annas 4 in 1878-79. The medical officer of Godhra dispensary primarily vaccinated 266 persons and re-vaccinated 1. There was only 1 death against 164 last year.

Ahmedabad Collectorate.

79. The Ahmedabad Collectorate has a population of 829,637 and an area of 3,844 square miles. There were 13 vaccinators and 3 more have been entertained since 1st April 1880 in the more populous Tálukas of Daskroi, Viramgám and Parántij; one other is still wanted for the town of Goghá. There were 18,228 persons primarily vaccinated and 928 re-vaccinated. The successful cases were 17,644 and 546 or 96·79 and 58·84 per cent. The rate of protection per mille of population was 21·92 against 25·98 in the previous year. Each vaccinator vaccinated 1,474 persons. The total cost was Rs. 3,722-9-5. The average cost per successful case was annas 3-3; last year it was annas 2-9. In 4 dispensaries 682 persons were primarily vaccinated and 4 re-vaccinated. There were 19 deaths against 339 in the preceding year.

Native States in the Eastern Gujarát Registration District.

80. The States of Mahi Kántha, Rewa Kántha, Cambay, the Surat Agency and Jámbughoda have a collective area of 9,493 square miles and a population of 1,143,028 souls. In Sachin and Jámbughoda States vaccination is performed by the vaccinator of the Chorási Táluka of the Surat Zilla, and in the latter by the vaccinator of Hálol, Panch Mahâls. There were 19 vaccinators employed in all these States and they primarily vaccinated 23,613 persons and re-vaccinated 75; of these 22,975, and 59 or 97·30 and 78·67 per cent were successfully operated on. Protection was afforded to 20·15 per mille of population; last year the rate was 22·89. Each vaccinator, on an average, operated on 1,247 persons. The Local Fund vaccinators in Sachin and Jámbughoda vaccinated 757 and 7 persons under each kind of operation; of these 734 or 96·95 and 6 or 85·71 per cent. were successfully operated on. Protection was afforded to 30·91 per 1,000 of population against 16·17 in the preceding year. The total cost in all the States was Rs. 4,666-2-9 or annas 3-1 per each successful case. The medical officer of the Sadra dispensary in Mahi Kántha States primarily vaccinated 163 persons and re-vaccinated 28.

Progress in the Western Gujarát Circle.

81. The Western Gujarát Circle comprises the Native States of Káthiáwár and Pálanpur. It has an area of 26,380 square miles and a population of 2,815,215 souls. It was administered by a Superintendent of vaccination, who had under him 2 Assistant Superintendents, 2 Clerks, 2 Government and 41 Native State Vaccinators and 49 Peons. The average number of square miles for each vaccinator was 613, and the average population of his area, 65,470. Vaccination was carried on in 8 Dispensaries. The number of primary vaccinations and re-vaccinations were respectively 64,817 and 3,960 against 72,680 and 3,552 in the preceding year. The successful cases were 59,063 and 2,429, their percentages being 91·12 and 61·34. The rate of protection was 21·84 per 1,000 of population; last year it was 23·99. Each vaccinator vaccinated 1,599 persons. The total cost per each successful case was Rs. 31,961-12-1 or annas 8-4 per each successful case. In the preceding year it was annas 7-2. In dispensaries there were primarily vaccinated 812 person and 186 were re-vaccinated.

Province of Káthiáwár.

82. The States of Káthiáwár have a collective area of 20,339 square miles and a population of 2,312,629. There were 36 vaccinators, who primarily vaccinated 51,444 persons and re-vaccinated 3,386. The successful cases were 46,724 and 2,025, or 90·82 and 59·81 per cent. Protection was afforded to 21·08 per 1,000 of population against 23·23 last year. The average per each vaccinator was 1,523 operations, and the average cost per each successful case was annas 4-3 calculated on the total cost of Rs. 12,965-7-4 ; last year the average cost was annas 3-10. In 8 dispensaries 812 persons were primarily vaccinated and 186 re-vaccinated.

Pálanpur States.

83. The Pálanpur States have an area of 6,041 square miles and a population of 502,586 souls. There were 7 vaccinators. The number of persons primarily vaccinated was 13,773 and that of the re-vaccinated was 574. The successful cases were 12,339 and 404 or 92·27 and 70·38 per cent. The rate of protection per mille of population was 25·35 against 27·53 in the preceding year. The average work per each vaccinator was 1,992 persons. The total cost was Rs. 2,016, or annas 2-6 per each successful case : last year it was annas 2-4.

Progress in the Sind Registration District.

84. The Sind Registration District comprises the Collectorates of Kurrachee, Hyderabad and Shikárpur, the Thar and Párkar, the Upper Sind Frontier and the Khairpur State. It has an area of 49,307 square miles and a population of 2,322,765. It was administered by a Deputy Sanitary Commissioner, who had under him 1 Superintendent of Vaccination, 6 Inspectors of Sanitation and Vaccination, 2 Clerks, 8 Municipal, 43 Local Fund and 2 Native State Vaccinators and 61 Peons. More vaccinators have been entertained since 1st April 1880—1 in Hyderabad, 1 in Thar and Párkar, and 5 in the Shikárpur Collectorate. Four more are required at the rate of one for each rural circle in the Kurrachee Collectorate. Vaccination was carried on in 21 Dispensaries. Each vaccinator had an area of 930 square miles, with a population of 43,826 souls. Those primarily vaccinated numbered 77,927 and the re-vaccinated were 36,110, against 64,064 and 43,611 in the preceding year. The successful cases were respectively 74,617 and 27,806. The rates of success were 95·75 and 77·09 per cent. and that of protection was 44·10 per 1,000 of population. It was 41·17 last year. The total cost was Rs. 37,370-9-9 and for each successful case it was annas 5-10, the same as last year. There were 2,487 persons primarily vaccinated and 1,861 re-vaccinated by medical officers of 21 dispensaries. There were 630 deaths against 421 in the previous year.

Kurrachee Collectorate.

85. The Kurrachee Collectorate has 14,091 square miles and 423,495 persons. There were 11 vaccinators and 4 more are required so as to have 1 for each rural circle. The number primarily vaccinated was 14,270 and the re-vaccinated were 8,105. The successful cases were respectively 13,934 and 6,499, or 97·65 and 80·19 per cent; whilst 48·25 per 1,000 of population were protected: last year the rate was 53·71. Each vaccinator vaccinated 2,034 persons. The total cost was Rs. 3,909-14, or annas 3-1 per each successful case : in the preceding year it was annas 2-6. In 7 dispensaries 744 persons were primarily vaccinated and 191 were re-vaccinated. The deaths were 60 against 5 in the previous year.

Hyderabad Collectorate.

86. The Hyderabad Collectorate has an area of 9,053 square miles and a population of 721,947. There were 13 vaccinators and 1 has been entertained since 1st April 1880. There were 19,168 persons primarily vaccinated and 5,821 re-vaccinated; of these 18,480 or 96·41 and 4,227 or 72·62 per cent. were successfully operated on. The rate of protection per mille of population was 31·45 : last year it was 31·48. Each vaccinator, on an average, vaccinated 1,923 persons. The total cost amounted to Rs. 3,893-15-6, which gives annas 2-9 as the cost per each successful case, the same as last year. In 6 dispensaries 455 persons were primarily vaccinated and 96 were re-vaccinated. There were 46 deaths against 105 in the preceding year.

Thar and Párkar.

87. The Thar and Párkar has an area of 12,729 square miles and a population of 180,761 souls. It had 6 vaccinators and 1 has been entertained since 1st April 1880. They pri-

marily vaccinated 6,697 and re-vaccinated 5,227 persons. The successful cases were 6,443 or 96·21 and 4,229 or 80·91 per cent. The protected were 59·04 per 1,000 against 53·65 in the preceding year. Each vaccinator, on an average, vaccinated 1,987 persons. The total cost was Rs. 1,654-7-3 or annas 2-9 per successful case: last year it was annas 2-8. In 4 dispensaries 221 persons were primarily vaccinated and 28 were re-vaccinated. There were 9 deaths, and last year there were 12.

Shikárpur Collectorate.

88. The Shikárpur Collectorate has 776,227 persons in an area of 8,813 square miles. There were 17 vaccinators and 4 have been entertained since 1st April 1880. They primarily vaccinated 29,819 and re-vaccinated 12,830 persons. The successful cases were 28,444 or 95·39 and 9,950 or 77·55 per cent. The protected were 49·46 per mille of population against 42·06 in the preceding year. Each vaccinator vaccinated 2,509 persons. The total cost was Rs. 5,459-4-0 or annas 2-3 per each successful case: last year it was annas 2-8. In 3 dispensaries there were 433 persons primarily vaccinated and 1,545 re-vaccinated. There were 421 deaths against 278 last year.

Upper Sind Frontier.

89. The Upper Sind Frontier has a population of 89,985 and an area of 1,913 square miles. It had 4 vaccinators who primarily vaccinated 5,670 persons and re-vaccinated 4,104. The successful cases were 5,100 and 2,888 or 89·95 and 70·37 per cent. The rate of protection per mille of population was 88·77, and last year it was 55·46. The average number of operations for each vaccinator was 2,443, and the cost of each successful case was annas 2-3 calculated on the total cost of Rs. 1,139-8-3. In the preceding year each successful case cost annas 3-1. There were 94 deaths against 21 in 1878-79.

Khairpur State.

90. The Khairpur State has an area of 2,708 square miles and a population of 130,350 souls. It had 2 vaccinators. They primarily vaccinated 2,303 and re-vaccinated 23 persons; of these 2,216 and 13 or 96·22 and 56·52 per cent. were successfully vaccinated. The protected were 17·10 per mille of population: last year they were 21·13. Each vaccinator, on an average, vaccinated 1,163 persons. The total cost was Rs. 791-3-2 or annas 5-8 per each successful case.

Progress in the Baroda Circle.

91. The States of Baroda have a population of 2,000,225 and an area of 10,767 square miles. It was administered by the Chief Medical Officer of those States, who had under him 3 Inspectors, 31 Vaccinators and 34 Peons. Each vaccinator has, on an average, 347 square miles and a population of 64,523. There were 49,105 persons primarily vaccinated and 166 re-vaccinated against 46,438 and 248 in 1878-79. The successful cases were 47,168 and 127 or 96·06 and 76·51 per cent. The rate of protection per mille of population was 23·64: last year it was 21·95. Each vaccinator vaccinated 1,590 persons. The total cost was Rs. 11,577-10-4 or annas 3-11 per each successful case: in the preceding year it was annas 4-3. Vaccinations were performed in 18 Dispensaries; whilst last year it was carried on in 10 only. In these dispensaries 2,137 persons were primarily vaccinated and 6 re-vaccinated.

Progress in the Cutch Circle.

92. The State of Cutch has a population of 487,305 in an area of 6,500 square miles. It was administered by the Medical Officer to H. H. the Rao of Cutch, who had under him an Assistant Superintendent of Vaccination, 15 Vaccinators and 16 Peons. Each vaccinator has an average population of 32,487 and an area of 433 square miles. The number of persons primarily vaccinated was 15,474 and that of the re-vaccinated was 1,257, against 11,312 and 451 last year. The successful cases were 13,487 and 707 or 87·16 and 56·25 per cent. The rate of protection per mille of population was 29·13: last year it was 21·99. Each vaccinator operated, on an average, on 1,115 persons. The total expenditure was Rs. 6,466-11-1 and the average cost per each successful case was annas 6-9: in the preceding year it was annas 9-6.

Progress in Aden.

93. Aden has an area of 11 square miles and a population of 19,289. The Municipality defrays the cost of 1 Vaccinator and 1 Peon. This vaccinator works under the

supervision of the Civil Surgeon. There were 876 persons primarily vaccinated and 22 re-vaccinated against 826 and 1 in the preceding year. Of the primary vaccinations 762 or 86·99 per cent. were successful. The re-vaccinations were all successful. The rate of protection afforded was 40·64 per 1,000 of population: last year it was 34·53. The total cost was Rs. 360 and the average cost per each successful case was annas 7-4: in the preceding year it was annas 2-7.

Progress in Bassadore and Muscat.

94. In Bassadore the work was carried on by the Dispensary Medical Officer, and in Muscat by the Civil Surgeon. There were 58 primary vaccinations in Bassadore, and 106 in Muscat, against 11 and 108 in the preceding year. The successful cases were 39 or 67·24 per cent. in the former, and 103 or 97·16 per cent. in the latter. There were no re-vaccinations. The area and population of Bassadore and Muscat are not known.

Tour of Deputy Sanitary Commissioners and Superintendent of Vaccination.

95. (*a*). In the Northern Deccan Registration District the Deputy Sanitary Commissioner went through the Erandol and Páchora Tálukas of Khándesh; the Tálukas of Násik, Dindori, Niphád, Chándor, Báglán and Kalwan in Násik; all the Tálukas of Ahmednagar except Jámkhed; the Tálukas of Sirúr, Purandhar, Haveli and Mával in Poona; and the Sholápur, Bársi and Pandharpur Tálukas of Sholápur. He travelled over 2,881½ miles in 199 days, visited 236 villages, and inspected 9,486 children.

(*b*). In the Southern Deccan the Deputy Sanitary Commissioner went through the Tálukas of Sátára, Khatáv, Mán, Koregaon, Válva and Karád in Sátára; all the Tálukas in Belgaum except Bidi and Athni; the Tálukas of Dhárwár, Bankápur, Hángal, Kod and Kalghatgi in Dhárwár; and through the Bágalkot Táluka of Kaládgi. The Native States he passed through were Inchalkaranji, Kágal and Kolhápur in the Kolhápur States, and Rámdurg and Sháhápur of the Sángli State in the Southern Marátha Jághírs. The total number of children inspected was 6,613 in 147 villages. The number of miles travelled was 1,447¼ in 123 days.

(*c*). The Deputy Sanitary Commissioner of the Konkan Registration District passed through the Tálukas of Ratnágiri, Vengurla, Khed and Chiplún in Ratnágiri; all the Tálukas of Kolába except Nágotna Petha; and the Tálukas of Sálsette, Kalyán, Bhiwndi, Bassein, Panvel and Karjat in Thána. Kánara was not visited this year. He passed through the Native State of Sávantvádi. He inspected 4,557 children in 87 villages. The number of miles travelled was 813 in 63 days.

(*d*). The Deputy Sanitary Commissioner, in the Eastern Gujarát Registration District, went through the Chorási Táluka of Surat; through the Tálukas of Broach, Vágra, A'mod and Jambusar in Broach; the Tálukas of Borsad, Mehmadabad, Nadiád and A'nand in Kaira and all the Tálukas of Ahmedabad except Dholka and Gogha. He also went through the Native States of Mahi Kántha. The Panch Mahals were not visited this year. He travelled over 2,114 miles in 159 days, and saw 7,705 children in 353 villages.

(*e*). In the Western Gujarát Circle the Superintendent of Vaccination went through all the States in Pálanpur; all the States except Limri and Jasdan in the Jhálávád Prant and through the States of Mália and Morvi in the Hálár Prant. The Gohelvád and Sorath Prants were not visited this year. He travelled over 809 miles in 78 days and inspected 4,373 children in 131 villages.

(*f*). In Sind, the Deputy Sanitary Commissioner went through all the Tálukas of the Kurrachee Collectorate except Tatta and Kurrachee. He visited Hyderabad, Tando, Bagejo Tando, Badin and Dero Mohbat in the Collectorate of Hyderabad; Dipla, Mitti and Umarkot in Thar and Párkar; and Rato-dero Sijáwal, Lárkhána, Kambar, Nasirabad, Labdarya, Tigar, Mehar and Kakar in the Shikárpur Collectorate. No travelling was done this year in the Upper Sind Frontier and Khairpur State. He inspected 17,461 children in 427 villages and travelled over 1,282 miles in 64 days. The five Deputy Sanitary Commissioners and the Superintendent of Vaccination have visited all the Districts except Kánara, Panch Máhals, and the Upper Sind Frontier. The Native States that were not visited this year are Akalkot, Jamkhandi, Miraj, Kurundvád, Mudhol, Savanúr, Sátára Jághírs, Jánjira, Jawhár, Rewa Kántha, Cambay, Surat Agency,

Jámbughoda, Gohelvád and Sorath Prants and Khairpur. There were collectively 294 encampments, 686 travelling days, 9,346¾ miles travelled, 1,381 villages visited, and 50,195 children inspected.

The Bombay Vaccination Act No. I of 1877.

96. The Compulsory Vaccination Act (I of 1877) has been in force for 2 complete years, and it is worked fairly well, considering that there are Budget difficulties to contend with. The work done is all that can be expected under the circumstances; but there ought to be more of it under altered circumstances, and to increase it, the working power must be increased. Not that there is a want of Vaccinators, but what is needed is a staff of subordinates. Subordinates, under strict supervision, to be constantly on the move in the several districts, to explain far and wide the responsibilities imposed by the Act, both as regards Registration and Vaccination, to persuade the wavering, help the willing, and give back-sliders no rest. More than one unsuccessful attempt has been made to obtain these subordinates, and the matter has at last been placed before Government. In a late communication I endeavoured to show how closely connected were Vaccination and Registration, and how both suffered from the division of duties which now obtains. If proof be wanted of perfunctory registration, we have it in the birth returns, published from time to time by the Health Office. In his last report he gives a table of births for 14 years, and I here reproduce that table, and have added to it a column to show the ratios per 1,000 of population :—

Letter No. 1,532 B., dated June 24th, 1880.

Years.	Number of Births.	Ratio per 1,000 of Population.	Population.
1866	5,904	7·23	Estimated 816,562.
1867	5,115	6·26	
1868	3,544	4·34	
1869	3,488	4·27	
1870	3,140	3·85	
1871	5,737	7·03	
Mean...	4,488	5·50	
1872	13,135	20·39	Enumerated 644,40
1873	12,722	19·74	
1874	12,835	19·92	
1875	13,391	20·78	
1876	13,625	21·15	
1877	13,886	21·53	
1878	14,038	21·79	
1879	14,559	22·59	
Mean	13,524	20·99	
Mean for 14 years ...	9,651	14·35	

For the first 6 years these ratios are calculated on the *estimated* total of 816,562, and for the last 8, on the *enumerated* total of 644,405. At page 7 of my Report for 1874, there is a computation of the birth rates for the Presidency, with a view to show the short comings, and by that computation this table is tested. For the first 6 years the mean annual number of registered births is 4,488, or 5·50 per 1,000: it should have been 33,446, or 40·96 per 1,000; so in every year of those six, no less than 28,958 births escaped registry. For the second period of 8 years there is an improvement. The annual number now is 13,524, or 20·99 per 1,000; but it should have been 26,395: so it is still 12,871 below the mark. For the whole period of 14 years the mean annual number is 9,651, or 14·35 per 1,000; it should have been 29,417: so the mean annual loss of Registration has been 19,766 births: clearly there is room for improvement. It has now been suggested that the Registration should be entrusted to the Vaccination Department, and that the 5 Registrars should be replaced by 12 Registrar-Vaccinators, who being the vaccinators, would be interested in seeing that the births of children to be vaccinated were duly registered. It is understood that the Municipal Act is to be amended, and I venture to hope that the opportunity

will not be lost to carry out the improvements, so much needed in Registration and Vaccination.

Kurrachee Vaccination Act.

97. The Kurrachee Vaccination Act (No. IV of 1879) came into force on the 1st September 1879. In accordance with Section 3 the city is divided into 6 Districts, where vaccination is performed gratuitously once a week, and the following are the Stations and times for each :—

Manora and Kemaree	...Mondays	... at 8	a.m.
Máhal Guard ...	...Tuesdays and Wednesdays	... at	do.
Civil Hospital ...	...Thursdays	... at	do.
Soldiers and Sadar Bázárs	...Fridays	... at	do.

A Superintendent of Vaccination has been entertained since the introduction of the Act. He is also the Registrar of Births, and for these duties has under him 2 Vaccinators, 3 Dispensary Hospital Assistants and 6 Police Registration Munshis. The whole cost is borne by the Municipality, and an office has been built for the Superintendent at Máhal Guard, the Central Station. As the Act has only been in force for seven months, much cannot be said as to the results of its working, but I regret to say that animal vaccination had to be given up in deference to the prejudices of the Hindus. They have no objection to arm-to-arm vaccination if their caste prejudices are cared for.

Suggestions for the more effectual spread of Vaccination.

98. The Deputy Sanitary Commissioner, Northern Deccan Registration District, has suggested the extension of the provisions of the Compulsory Vaccination Act to the City of Poona, which has a population of 90,436. In para. 91, page 39 of the report for last year, it is calculated that 31 per 1,000 of population would represent the number of surviving infants annually available for vaccination. At this rate, 2,804 infants should be forthcoming; but though there are 2 vaccinators employed by the Municipality, they have this year vaccinated only 1,424 against 1,560 last year. Compared however with the number of births registered for the year (only 451), it appears that they have vaccinated more than three times the number born! Allowing the children born in the last quarter of one year may be vaccinated in the following year, it is very improbable, that there would have been so many of these cases. It is clear, therefore, that some measures should be adopted to have more accurate returns of births. It has been suggested to Government, in my letter No. 1258 B, dated 28th May 1880, that the services of the vaccinators might be utilized for registration purposes, as they are all able to write and work from village to village all the year round. This would tend to improve the birth statistics and those for vaccination also, as vaccinators would then be in a position to compare their vaccinations with the number of infants born.

SECTION IV.

SANITARY WORKS (MILITARY).

THIS section consists of extracts taken from the Annual Cantonment Reports of the Executive Engineers in charge of Military Stations.

The actual outlay on sanitary works (Military) during 1879 amounted to Rs. 2,61,390. Of this sum Rs. 1,37,193 were spent at Mhow, of which Rs. 1,36,264 were for building Barracks for the Horse Artillery; at Aden Rs. 56,080 were expended principally on stabling for Aden Troops at Khore Muxa and European Infantry Barracks, Front Bay; at Ahmedabad Rs. 18,672 were expended, of which Rs. 8,439 were for special repairs to the Native Infantry Lines; at Deesa Rs. 17,751 were spent, of which Rs. 8,605 were for altering the plank doors and windows of the E. I. Barracks to half glazed and half panelled.

The following Table shows the total amount spent on Sanitary works (Military) at each station during the year 1879 :—

Station.	Actual Outlay.	Station.	Actual Outlay.
	Rs.		Rs.
Poona	2,255	Indore	3,194
Kirkee	620	Asirgarh	324
Ahmednágar	789	Mehidpur	...
Sholápur	...	Neemuch	3,253
Málegaon	1,717	Nasirabad	2,161
Sátára	154	Belgaum	150
Sirúr*	...	Dhárwár	637
Purandhar	690	Kolhápur	...
Ahmedabad	18,672	Kolába	6,126
Deesa	17,751	Bombay	629
Mount Abu	194	Thána	...
Baroda	6,350	Devláli	...
Rájkot	2,241	Kurrachee	...
Bhúj	...	Hyderabad	210
Surat*	...	Jacobabad*	...
Mhow	1,37,193	Aden	56,080

* Reports on these stations were not received.

POONA DIVISION OF THE ARMY.

Stations.—POONA, KIRKEE, AHMEDNAGAR, SHOLA'PUR, MA'LEGAON, SA'TA'RA, SIRU'R, PURANDHAR.

POONA.

Major Ducat, R.E., Executive Engineer, Poona and Kirkee, reports that the followin Sanitary works were undertaken during the year 1879 :—

Constructing a latrine for Native attendants in the Commissariat Store compound at Poona.

A new and improved latrine has been constructed.

Estimated cost ... ... Rs. 137
Actual outlay ... ... „ 136

Improvement to the Soldiers' Institute at Wanowrie.

This improvement consisted in altering the hipped roof of the south end of the building to a gabled roof and piercing an iron circular glazed window in this gable for the purpose of ventilation and light.

Estimated cost ... ... Rs. 337
Actual outlay ... ... „ 334

Widening the pavement round the water trough in the Commissariat cattle lines, Poona.

The pavement round the old trough is widened from 5 to 10 feet with the necessary means of drainage of the waste water to a distance.

Estimated cost ... ... Rs. 696
Actual outlay ... ... „ 695

Piercing 11 windows, providing 18 ventilators to the roof and 5 weather boards to the Commissariat Godowns at Poona.

These alterations have been carried out for the purpose of giving ventilation and light into the Commissariat Godowns, Nos. 1, 2, 3, 4, 5, 6, and 8.

Estimated cost ... ... Rs. 1,373
Actual outlay ... ... „ 914

Special repairs to two windows in the Hospital at Wanowrie.

There were formerly two windows $3\frac{1}{2}' \times 6\frac{1}{2}'$ about $3\frac{1}{2}'$ above ground in the central ward by which the perflation of the westerly wind through the hospital was much obstructed. They were therefore changed into doors $4' \times 8'$.

Estimated cost ... ... Rs. 115
Actual outlay ... ... „ 115

Getting rid of a pool of stagnent water in the Nála, near the west side of the Lines, occupied by the 4th Rifles, Poona.

The pool has been filled in with debris from old Lascar Lines, and over that a layer of 6″ of moorum has been spread.

Estimated cost ... ... Rs. 66
Actual outlay ... ... „ 61

Improvements to the surface drainage of the Hospital of the 18th Regiment, N. I., at Poona.

This work is in course of construction. Two cut stone platforms, each $6' \times 6'$ round the stand-pipes at the hospital are being constructed; also a drain of ridge tiles to convey the waste water from the stand-pipes and bath-rooms to the adjacent Nála.

Estimated cost ... ... Rs. 71
Actual outlay. Not known.

KIRKEE.

Major Ducat, R.E., Executive Engineer, Poona and Kirkee, reports that the following Sanitary work was undertaken during the year 1879:—

Drainage of the new Cemetery at Kirkee.—An open trench has been cut on the north and west sides of the cemetery so as to intercept the sub-soil water flowing towards the river, and to prevent the same from entering into the cemetery. The work is nearly completed.

Estimated cost ... ... Rs. 655
Approximate outlay ... ... „ 620

AHMEDNAGAR.

The Executive Engineer, Ahmednagar, reports that the works that come under the head of "Sanitary," carried out by the Public Works Department in the year 1879, were insignificant.

Bhingár and Shápur Aqueducts.—Supplying new coping for the parapets of the dipping wells on the line of the aqueducts within the camp limits, completed.

Estimated amount	... Rs.	361	0	0
Actual outlay for 1879 ...	... „	208	5	7
Do. 1878 ...	... „	152	5	6
Total outlay Rs.		360	11	1

Covering over the opening of a shaft of the Bhingár aqueduct.

Estimated cost	... Rs.	18	0	0
Actual outlay	... „	17	15	11

Temporary Artillery Lines.—Stone paving the floors of the latrines used by the Horse-keepers.

Estimated cost	... Rs.	44	0	0
Actual outlay	... „	44	2	0

Commissariat Slaughter-yard.—Paving a portion of the Commissariat Slaughter-yard at Nagar.

Estimated cost	... Rs.	462	0	0
Actual outlay	... „	461	13	6

Native Infantry Lines.—Providing one iron barred door and putting iron bars to 2 windows in the Detention room attached to the Quarter Guard.

Estimated cost	... Rs.	57	0	0
Actual outlay	... „	57	0	0

SHOLA'PUR.

The Executive Engineer, Sholápur District, reports that no Sanitary works were undertaken during the year 1879.

MA'LEGAON.

Captain J. Clabby, Acting Executive Engineer, Khándesh, gives the following information regarding the Sanitary works undertaken during the year 1879 :—

A Guard-room for the Native Infantry Hospital at Málegaon 20′ × 12′ and 12′ high interior dimension with an open verandah 7 feet in front and rear was recommenced in April 1879 and completed in August 1879, at a total cost of Rs. 1,274. Estimated cost Rs. 1,303.

Improvements to the Armourers' shop such as paving the floor and providing the working table with wooden drawers 2′ × 2′ × ½′ and with a board 5 feet wide in front have been executed, the furnace and bellows room being narrow it has been widened so as to make it convenient for the Armourer to work in it, completed.

Estimated cost	...	...	... Rs. 471 0 0
Actual expenditure	...	...	... „ 443 0 0

SA'TA'RA.

Captain Cruickshank, R.E., Executive Engineer, Sátára, gives the following information regarding the Sanitary work undertaken during the year 1879 :—

Providing a moat and trough to the well in the Commissariat Lines at Sátára.—In order to obviate the tedious system of drawing water from the well for a number of animals by means of hand buckets, an estimate was sanctioned, in which a moat to be worked by bullock power and a trough have been provided, nearly completed.

Estimated cost	...	...	... Rs. 249 0 0
Actual cost	...	...	... „ 153 13 8

PURANDHAR.

Major Seton, R.E., Executive Engineer, Northern and Southern Divisions, reports that the Sanitary works undertaken during the year 1879 were as follows :—

Additions and Alterations to the Hospital Sergeant's Quarters, suspended in 1878-79.—The quarters afford the superficial area allowed for a Sergeant, class B, but the sitting room being too large and the bed-room too small, the latter has been increased by reducing the size of the former and a bath-room formed, in the end of the back verandah. The expenditure on this work, during the current year, was Rs. 506-6-3.

Estimated cost	...	...	... Rs. 647 0 0
Actual expenditure	...	...	... „ 646 2 3

Constructing a retaining Wall and a Drain at the back of No. 1 Barrack, suspended in 1878-79.—The loose Moorum on the face of the cutting in the Hill in rear of Barrack No. 1 having given way, it was found necessary to construct a dry stone retaining wall at the foot of the cutting and a masonry drain to carry off the water. The expenditure during this year, on this work, was Rs. 114-6-7.

Estimated cost	...	...	... Rs. 578 0 0
Actual expenditure	...	..	... „ 572 11 6

Increasing the ventilation in the Ridges and Eaves of Barracks No. 1 and 4.—The ventilation of the Barracks being considered defective it was thought advisable to increase the ventilation as in Barrack No. 2, which is similar in design and dimensions.

Estimated cost	...	...	... Rs. 72 0 0
Actual expenditure	...	...	... „ 68 15 11

NORTHERN DIVISION OF THE ARMY.

Stations.—AHMEDABAD, DEESA, MOUNT ABU, BARODA, RA'JKOT, BHU'J, SURAT.

AHMEDABAD.

Major Cruickshank, Executive Engineer, Ahmedabad Division, reports that the following Sanitary works were undertaken during the year 1879 :—

Family Quarters with Out-houses for Royal Artillery.—These are (3) three in number, one of which in progress last year was completed in March 1879, and handed over to the Military authorities. Full description with dimensions, &c., has been furnished in previous reports (1877 and 1878).

Estimated cost for 3 blocks ...	...	Rs. 73,844
Actual outlay during the year ...	...	„ 2,193
Previous expenditure ...	...	„ 67,205
	Total outlay	Rs. 69,398

Additions and Alterations to Barrack No. 18 *for Royal Artillery.*—This work is nearly completed and will be made over to the Military Department in the course of the next month. Full description regarding this has been given in last year's report.

Estimated cost	...	Rs. 9,825
Actual outlay during the year ...	...	„ 565*
Previous expenditure	...	„ 5,169
Actual outlay to end of December 1879...	...	Rs. 5,734

Canteen for Royal Artillery.—This Building will be completed and ready for transfer to the Military Department before March 1880. Description with dimensions, &c., has been furnished in last year's report.

Estimated cost	...	Rs. 9,279
Actual outlay during the year ...	...	„ 2,979*
Previous outlay...	...	„ 3,208
	Total outlay	Rs. 6,187

Dispense Magazine for Royal Artillery.—This building is almost completed and will be transferred to the Military authorities shortly. Description with dimensions, &c., has been furnished in last year's report.

Estimated cost	...	Rs. 4,506
Actual outlay during the year ...	...	„ 429*
Previous expenditure	...	„ 2,678
	Total outlay	Rs. 3,107

Commissariat Stores, Camp Ahmedabad.—This work, in progress last year, was completed in March 1879, and handed over to the Military authorities. Description with dimensions has been furnished already in the last year's report.

Estimated cost...	...	Rs. 19,188
Actual outlay during the year ...	...	„ 3,566
Previous expenditure	...	„ 14,658
Actual outlay to end of December 1879	...	Rs. 18,224

A new Church for the Protestants in Camp.—The foundations of this building have been filled in, and the work has been suspended by orders of Government. Description with dimensions has been furnished in last year's report.

Estimated cost...	...	Rs. 24,393
Actual outlay during the year ...	...	„ 301
Previous expenditure	...	„ 1,615
Actual outlay to end of December 1879	...	Rs. 1,916

Sheds for the storage of Camp Equipage in Regimental charge, Camp Ahmedabad.—Storage room has been made at one end of the unoccupied Barrack No. 8 in Camp by means of a masonry partition. It is 23' 6" in length, and 22 feet broad internally. The work has been completed in May last, and made over to the Military Department for use.

Estimated cost	...	Rs. 200
Actual outlay	...	„ 200

Special repairs to the Left Flank Native Infantry Lines, Camp Ahmedabad.—These line consist of 32 blocks, containing 24 rooms (each block being 117' 6" in length and 33' 9" in breadth externally) with 16 Native officers' quarters. The lines being for the most part unoccupied for some time past were in a very delapidated condition as their wood work was quite eaten up by white ants and the roofs with kacha masonry pillars supporting them had

* *Note.*—Payment has to be made in January 1880 for work done in December 1879.

given way bodily in some places, bringing the walls also down with them. These have been restored to their original state by re-building the fallen portions. The repairs are very nearly completed.

Estimated cost	Rs. 8,588
Actual outlay to end of December 1879 ...	„ 8,439

DEESA.

Executive Engineer, Abu and Deesa Divisions, reports that the following Sanitary works were undertaken at Deesa during the year 1879 :—

Royal Artillery Lines.—Ventilators raised and iron bars supplied in Royal Artillery cells.

Estimated cost	Rs.	65	0 0
Actual expenditure	„	60	7 9

Hooks for hanging lamps were fixed in the single men's Barracks. The estimated amount both for Royal Artillery and European Infantry was ... Rs. 35 0 0

Actual expenditure	„	8	7 5

A drain was made in the Bath-room No. 33, Patcherry.

Estimated cost	Rs.	82	0 0
Actual expenditure	„	75	7 2

The masonry top removed and stone slabs placed instead on the drain of a well.

Estimated cost	Rs.	47	0 0
Actual expenditure	„	28	9 6

Rough stone work of a well was repaired.

Estimated cost	Rs.	35	0 0
Actual expenditure	„	22	9 9

European Infantry Lines.—The plank doors and windows of the European Infantry Barracks were altered to half glazed and half panelled, and the floors were made of concrete.

Estimated cost	Rs.	37,756	0 0
Actual expenditure...	„	8,605	0 0

The work was completed in March 1879 at an aggregate cost of Rs. 30,419.

Additional Wash-houses were constructed for 8 old Barracks and Patcherries in order to bring the accommodation up to the standard scale.

Estimated cost	Rs.	4,838	0 0
Actual expenditure	„	4,836	0 0

The damage caused by fire, during the last hot weather, to Patcherry No. 88 was repaired.

Estimated cost	Rs.	528	0 0
Actual expenditure	„	591	0 0

Timbers of roofs of single men's Barracks are being supported and renewed where necessary.

Estimated cost	Rs.	409	0 0
Outlay up to 31st December 1879 ...	„	108	0 0

The floor of main room and back verandah of No. 12 Barrack was repaired.

Estimated cost	Rs.	167	0 0
Actual expenditure	„	212	0 0

Certain alterations to cells were carried out.

Estimated cost	Rs.	183	0 0
Actual expenditure	„	184	0 0

A grass hut 30′ × 15′ for small-pox patients was erected.

Estimated cost	Rs.	75	8 0
Actual expenditure	„	60	8 8

A wooden run was made for the Gymnasium.

Estimated cost	Rs.	75	0 0
Actual expenditure	„	73	11 0

Note.—Payment has to be made in January 1880 for work done in December 1879.

Hooks for hanging lamps were fixed in the single men's Barracks.

Estimated cost (both for European Artillery and European Infantry)	...	...	Rs.	35	0 0
Actual outlay	...	...	„	16	2 7

Native Infantry Line.—Certain alterations to the Privy of the Magazine were asked for, which was carried out at an outlay of Rs. 15-8-7 against a requisition amounting to Rs. 15-0-0.

Native Cavalry Line.—An Armourer's shop is being built, as nearly as possible, according to the standard plan.

Estimated cost	...	...	Rs.	1,837	0 0
Actual outlay to end of December 1879		...	„	1,817	0 0

Commissariat.—Roof of Arrack Stores was repaired.

Estimated cost	...	...	Rs.	102	0 0
Actual expenditure	...	...	„	115	0 0

General Cantonment works.—The Nála flowing south-west of Deesa Cantonment was diverted, as the public buildings were in danger of being destroyed by falling in of its bank.

Estimated cost	...	...	Rs.	925	0 0
Actual expenditure	...	...	„	921	11 8

MOUNT ABU.

The Executive Engineer, Abu and Deesa Divisions, reports that the following Sanitary works were undertaken during the year 1879 :—

European Infantry Lines.—Part of verandah of No. 2 Barrack was converted into a Store-room.

Estimated cost	...	...	Rs.	28	0 0
Actual expenditure	...	...	„	27	14 0

A chupper for Bath-room was erected at an estimated outlay of Rs. 21.
No. 29 Urinary was rebuilt.

Estimated cost ...	...	...	Rs.	88
Actual expenditure	...	...	„	77

Certain petty works were required to be carried out to the Abu Lawrence School which were executed at an outlay of Rs. 68-7-6.

Against an estimate amounting to Rs. 75-0-0

BARODA.

The Executive Engineer, Broach Division, reports that the following works were undertaken during the year 1879 :—

Constructing a well in the Royal Artillery Lines.—The well is 10 feet in interior diameter and 55'-6" deep, excluding parapet wall, which is 3 feet high.

It is covered on top by teak planking supported an joists and perforated. Two trap-doors, 2½ feet square, are provided in the planking with a wooden pulley at each of them, to draw water from the well.

A stone platform 4 feet broad, with a gutter cut along the outer edge, is constructed all round the well.

Estimated amount	...	...	Rs.	2,633	0 0
Actual expenditure	...	...	„	2,622	11 1

Making certain additions and alterations to the Barracks occupied by European Troops and to the auxiliary and subsidiary Buildings.—The chunam floor of the verandah of Barrack No. 1 has been removed and brick on edge has been substituted.

2. The floor of the gun shed was paved with brick on edge.

3. The sick horse stable has been provided with a continuous ridge ventilator and two new windows were opened in each of the end walls.

Estimated amount	...	...	Rs.	1,353	0 0
Actual expenditure	...	...	„	1,352	13 9

Making certain improvements to the Barracks occupied by European Troops.—A bamboo partition has been erected in Barrack C. to divide the Recreation room and the Workshop. The partition at the end of the Harness room is plastered with mud.

2. Six lavatories have been provided with pegs and shelves allowing 8 pegs and 2 shelves to each.

3. A temporary lavatory, similar to the existing ones and 31′ 6″ × 11′ 6″ × 7′ in exterior dimensions, has been contructed for the use of the men occupying G. Barrack.

4. The Royal Artillery orderly-room has been provided with cloth ceiling.

5. Three temporary partitions have been erected in Barrack D. to separate from each other—the Serjeants' Mess, School, Store, and Recreation rooms.

6. The Barracks E. and F., occupied by European Infantry, have been provided with cloth ceilings.

Estimated amount ...	...	...	Rs. 2,375 0 0
Actual expenditure...	...	...	„ 2,374 12 5

RA'JKOT.

The Superintendent of Public Works, Rájkot, reports that the following Sanitary works were undertaken during the year 1879 :—

Making additions and alterations to the Armourer's workshop for Native Infantry at Rájkot.

Estimated cost	...	...	... Rs. 1,413 0 0
Actual cost	...	...	... „ 1,413 0 0

Two sheds for the storage of camp equipage in regimental charge.

Estimated cost	...	...	... Rs. 834 0 0
Actual cost...	...	...	... „ 814 8 1

Eight arm racks for Squadron, 3rd Queen Own Light Cavalry at Rajkot.

Estimated cost	...	...	... Rs. 14 0 0
Actual cost...	...	...	... „ 14 0 0

BHU'J.

The Superintendent of Public Works at Bhúj, reports that no Sanitary works were undertaken at Bhúj during the year 1879.

MHOW DIVISION OF THE ARMY.

Stations.—MHOW, INDORE, ASIRGARH, MEHIDPUR, NEEMUCH, NASIRABAD.

MHOW.

Major Swetenham, Executive Engineer, Mhow Division, reports that the following Sanitary works were carried out at Mhow during the year 1879 :—

Barracks for the Horse Artillery.—Building of new Barracks for the Horse Artillery along with these subsidiary buildings at a total cost of Rs. 4,13,104. Actual expenditure during year Rs. 1,36,264.

Minor Sanitary Work.—An extra building in the European Infantry Lines has been converted into a Wash-house at a cost of Rs. 177.

Filling up low ground round camp followers' Hospital, Mhow—actual cost Rs. 414.

Paving the floors of camp followers' Hospital, Mhow—actual cost Rs. 338.

INDORE.

Major Swetenham, Executive Engineer, Mhow Division, reports that the following Sanitary works were carried out at Indore during the year 1879 :—

The walls of the Native Infantry Lines at Indore has been raised to 2 feet, and the work done at a cost of Rs. 1,404.

Ridge ventilators and stone pavement under seats and in rear passage of the European Infantry Latrines, Indore, has been provided at a cost of Rs. 320.

Ridge ventilators and sun shades provided to European Infantry Barrack at Indore at a cost of Rs. 577.

Stone payment to the verandah of the European Infantry Hospital, Indore, has been made at a cost of Rs. 893.

ASIRGARH.

Mr. E. Penny, C.E., Executive Engineer, Hoshangabad Division, reports that the following Sanitary work was carried out at Asirgarh during the year 1879 :—

Drainage of the Native Infantry Lines :—

Estimated cost	...	...	... Rs. 2,070 0 0
Actual outlay	...	...	... „ 324 3 11

MEHIDPUR.

Lieutenant A. A. Pearson, Staff Officer, Mehidpur, reports that no Sanitary works were undertaken during the year 1879.

NEEMUCH.

Executive Engineer, Neemuch Division, reports that the following Sanitary works were undertaken during the year 1879 :—

				Expenditure during the year 1879.
Covering Wells	...	...	... Rs. 350 14 4	
Filling holes in Brick Fields	...	...	„ 397 12 8	
Improving Bázár Drainage	...	...	„ 1,613 8 9	
Improving Drainage of north-east corner of Sadar Bázár	...	...	„ 732 9 9	
Dismantling old horse lines near Royal Artillery Barracks	...	...	„ 70 13 0	
Dismantling open drains—European Infantry Lines (new)	...	...	„ 75 0 0	
Concrete drains round well No. 30, near Native Infantry Officers' Mess	...	...	„ 12 0 0	

NASIRABAD.

The Executive Engineer, Nasirabad Division, reports that the following Sanitary works were carried out during the year 1879 :—

Alterations to European Infantry Barracks, Nos. 7 and 8, in order to improve ventilation.

Estimated cost ...	...	...	... Rs. 751 0 0
Actual expenditure	...	...	... „ 674 0 0

Improving ventilations and providing compound walls to Staff Sergeant's quarters, Nos. 30 and 86.

Estimated cost	...	...	... Rs. 1,199 0 0
Actual expenditure	...	...	... „ 1,081 0 0

Dismantling Privy No. 63, and converting No. 64 Privy into urinary in Royal Artillery Lines.

Estimated cost ...	...	...	... Rs. 34 0 0
Actual expenditure	...	...	.. „ 39 0 0

Improving ventilation in Royal Artillery Barrack No. 2 by opening out the partition walls at intervals.

Estimated cost ...	...	...	... Rs. 145 0 0
Actual expenditure	...	...	... „ 136 0 0

Separating the Ablution room from the Latrine in European Infantry Hospital at Nasirabad.

Estimated cost ...	...	...	... Rs. 123 0 0
Actual expenditure	...	...	... „ 141 0 0

Dismantling old workshop in Royal Artillery Lines at Nasirabad.

Actual expenditure	...	...	... Rs. 90 0 0

Cleaning all road drains throughout the Cantonment. Partly charges to road repairs and partly done by prison labour.

BELGAUM DISTRICT.

Stations.—BELGAUM, DHA'RWAR, KOLHA'PUR.

BELGAUM.

Lieutenant-Colonel Gambier, R.E., Executive Engineer, Belgaum District, reports that the following Sanitary works were undertaken during the year 1879 :—

Alterations to the cells in the Native Infantry Lines, Belgaum.

Estimated cost	...	...	... Rs.	40 0 0
Actual expenditure	...	...	... „	40 0 0

Lowering the dwarf side walls of the new Royal Artillery stables.

Estimated cost	...	...	... Rs.	35 0 0
Actual expenditure	...	...	... „	35 0 0

Improving the ventilation of the loose boxes in the Royal Artillery Infirmary stable, Belgaum.

Estimated cost	...	...	... Rs.	40 0 0
Actual expenditure	...	...	... „	40 0 0

Constructing cisterns for holding iron receptacles for the Wash-houses of the Patcheries in Fort, Belgaum.

Estimated cost	...	...	... Rs.	36 0 0
Actual expenditure	...	...	... „	35 0 0

DHA'RWA'R.

The Acting Executive Engineer, Dhárwár District, reports that the following Sanitary works were carried out during the year 1879 :—

Paving with stones the floors of the Hospital of Her Majesty's XVII. Regiment at Dhárwár, the work is not yet completed.

Estimated cost	...	...	... Rs.	3,186 0 0
Actual expenditure	...	...	... „	481 10 5

Making an additional room for the storage of the Camp Equipage in rear of Her Majesty's XVII. Regiment at Dhárwár.

Actual expenditure	...	...	... Rs.	155 3 4

BOMBAY DISTRICT.

Stations.—COLA'BA, BOMBAY, THA'NA, DEVLA'LI.

COLA'BA.

Captain W. H. Haydon, R.E., Executive Engineer, Bombay Defences, reports that the following Sanitary works were undertaken during the year 1879 :—

Barracks and their Out-buildings.—Accommodation for British Infantry, making certain additions and alterations to the water-pipes and tanks in the European Infantry Barracks at Colába, the work is nearly completed.

Estimated cost	...	...	... Rs.	1,657 0 0
Actual cost	...	...	... „	1,550 0 0

Barrack Subsidiary Buildings.—Constructing a shed for the storage of Camp Equipage in Regimental charge at Colába. Completed.

Estimated cost	...	...	... Rs.	2,032 0 0
Actual outlay	...	...	... „	1,569 0 0

Making a slope to allow of a Fire Engine, recently sanctioned for the Infantry Lines, Colába, being without difficulty moved into and out of the verandah. Completed.

Estimated cost	...	...	... Rs.	3 0 0
Actual outlay	...	...	... „	3 0 0

Barracks and their Out-buildings.—Accommodation for European Artillery, fitting arm racks in the single men's and married men's quarters in the Royal Artillery Lines for Martini-Henry carbines. Completed.

Estimated cost	...	...	... Rs.	48	0 0
Actual cost	...	...	... „	48	0 0

Converting the Royal Artillery Instruction-room, in No. 2 Barrack, into a Barrack Room. Completed.

Estimated cost	...	...	... Rs.	251	0 0
Actual outlay	...	...	... „	251	0 0

Making certain additions and alterations to the water-pipes and tanks in the Royal Artillery Barracks at Colába. Nearly completed.

Estimated cost	...	...	... Rs.	1,098	0 0
Actual cost	...	...	... „	1,050	0 0

Barrack Subsidiary Buildings.—Shifting the Punhkas in the Royal Artillery School-house, Colába. Completed.

Estimated cost	...	...	... Rs.	5	0 0
Actual cost ...	...	...	... „	5	0 0

Completing the Camp for Fire Engine between the Royal Artillery Quarter Guard and the Lavatory attached thereto. Completed.

Estimated cost	...	...	... Rs.	24	0 0
Actual cost ...	...	...	... „	24	0 0

Sanitaria Buildings—Barracks and their Out-buildings.—Thinly coating the glass of the Ablution Room, windows of the Depôt Barracks, Colába, with white oil paint; providing an iron pipe with brass taper, cock and waste water-pipe and sink, &c., to the Station Hospital. Completed.

Estimated cost	...	...	... Rs.	16	0 0
Actual cost...	...	...	... „	15	0 0

Miscellaneous.—Supplying the five upper windows on the weather side of Bungalow No. 32 at Colába with weather boards. Completed.

Estimated cost	...	...	... Rs.	30	0 0
Actual cost ...	...	...	... „	30	0 0

Erecting a Latrine for the use of the servants of the Lunatic Asylum at Colába. Completed.

Estimated cost	...	...	... Rs.	221	0 0
Actual cost	...	...	... „	221	0 0

Providing 8 windows of Quarters No. 26 at Colába with weather frames. Completed.

Estimated cost	....	...	... Rs.	47	0 0
Actual cost	...	...	... „	45	0 0

Removal of the rise in the ground of the short Musketry range at Colába. Completed.

Estimated cost	...	...	... Rs.	95	0 0
Actual cost ...	...	...	... „	95	0 0

Laying water-pipes to the Warrant and Non-Commissioned Officers' Quarters, Regimental School and Sergeants' Mess at Colába. Completed.

Estimated cost	...	...	... Rs.	822	0 0
Actual cost	...	...	... „	822	0 0

Removing and re-constructing the Markers' Butts at Colába. Completed.

Estimated cost	...	...	... Rs.	416	0 0
Actual cost	...	...	... „	398	0 0

BOMBAY.

Mr. Muncherji Cowasji, A. I. C. E., Acting Executive Engineer, Presidency, reports that the following Sanitary (minor) works were undertaken during the year 1879:—

Laying on Vehar water to the Hospital of H. M.'s 9th Regiment, N. I., in Marine Lines.

Estimated cost	...	...	... Rs. 309 0 0
Actual cost	...	...	... „ 307 3 2

Making alterations to the Stables of the Commissariat Department in the Town Barracks.

Estimated cost	...	...	... Rs. 204 0 0
Actual cost	...	...	... „ 202 9 11

Laying a Vehar water-pipe to the Warrant Officers' Quarters in the old Government Bakery Building in the Fort, Bombay.

Estimated cost	...	...	... Rs. 129 0 0
Actual cost	...	...	... „ 118 12 5

THA'NA.

Mr. F. B. Maclaran, C.E., Executive Engineer, Northern Konkan, reports that no Sanitary works were undertaken at this station during the year 1879.

DEVLA'LI.

Captain W. Osborn, R.E., Executive Engineer, Northern Division, reports that no Sanitary works were undertaken during the year 1879.

SIND DISTRICT.

Stations.—KURRACHEE, HYDERABAD, JACOBABAD.

KURRACHEE.

Major Merewether, R.E., Executive Engineer, Lower and Central Sind, reports that no Sanitary works were undertaken during the year 1879.

HYDERABAD.

Major Merewether, R.E., Executive Engineer, Lower and Central Sind, reports that the following Sanitary work was undertaken during the year 1879 :—

Drains were lined with brick-work resting on concrete for carrying off the waste water from the Lavatories of the European Barracks.

Estimated cost	...	...	... Rs. 221 0 0
Actual outlay	...	...	... „ 210 0 0

ADEN.

The Executive Engineer, Aden Division, reports that the following Sanitary works were undertaken during the year 1879 :—

Constructing stabling and sick horse stabling for the Aden Troop at Khore Muxa.

Estimated cost	...	...	... Rs. 22,951 0 0
Actual outlay	...	...	... „ 23,269 0 0

Constructing malt-liquor sheds at Isthmus.

Estimated cost	...	...	... Rs. 6,048 0 0
Actual cost	...	...	... „ 6,047 0 0

Constructing a block of 4 rooms for the Hospital servants of the Aden Troop at Khore Muxa.

Estimated cost	...	...	... Rs. 1,759 0 0
Actual expenditure	...	...	... „ 1,748 0 0

Re-roofing one of the European Infantry Barracks, Front Bay.

Estimated cost	...	...	... Rs. 13,966 0 0
Actual outlay	...	...	... „ 14,016 0 0

Re-constructing Government Bungalow No 3 at Steamer Point.

Estimated cost	...	...	... Rs. 6,087 0 0
Actual cost	...	...	... „ 6,000 0 0

Re-constructing Government Bungalow No. 7 at Steamer Point.

Estimated cost	...	...	... Rs. 5,058 0 0
Actual cost	...	...	... „ 5,000 0 0

SECTION V.

SANITARY WORKS (CIVIL).

This section gives a list of Sanitary works undertaken during 1879 by Municipalities and Local Funds Committees, for the benefit of the civil population, and in column 12 of the Return there are shown those sanitary requirements most urgently needed in each District. In the Resolution of Government, on this section in last year's Report, there is the following—"In column 12 of the Statement in Section V. the Sanitary Commissioner gives a list of works urgently needed in each district. His Excellency in Council thinks that, in the case of the more important works at all events, Mr. Lumsdaine might well have supplied Government with some reasons and suggestions in support of his recommendations." To prevent misconception I would observe very respectfully that the recommendations were, and are in the present Report, those of the Collectors :—

Statements showing the Sanitary improvements carried out by Municipalities and Local Funds Committees in each Collectorate during the year 1879.

Name of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of Sanitary requirements most urgently needed.	List of Sanitary improvements during the year.
KHA'NDESH.												
By Municipalities.					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Jalgaon	8,406	1	201	1	17,741 9 7	85,213 11 9	3,158 15 7	71,255 8 1	85	112	Latrines	A good supply of pure water is secured by the completion of the new Mehrun tank.
											Distribution of Mehrun water in the town, packa dust-bins ..	
											Packa bundhara to the Nála lying to the south of Mr. Garud's garden to protect lower village from floods.	A Municipal garden.
												Dust-bins.
												New lines of street.
Amalner ..	8,432	..	4	..	2,690 8 6	2,126 14 0	1,160 8 10	671 4 0	93	155	Dispensary	Drainage.
											Drainage	Kacha privies outside the town in progress.
Párola	11,436	7	75	4	6,980 12 11	6,860 7 11	6,036 10 2	3,030 10 2	203	184	Drainage	Ditto. ditto.
Erandol	10,356	2	53	..	3,606 13 0	2,882 8 11	1,740 3 0	1,908 10 4	46	121	Do.	Ditto. ditto.
Dharangaon	11,691	5	11	..	4,657 13 10	4,500 12 0	2,452 10 4	1,540 5 4	49	140	Dispensary	Drainage.
											Privies outside the town.	
Bhadgaon	5,474	..	..	..	1,665 12 10	1,767 12 4	1,671 0 3	1,204 11 5	64	58	Drainage	Drainage.
Máheji Fair	2,151	..	2	..	1,110 0 0	1,412 9 5	467 7 8	577 7 0	..	..	This is only a temporary Municipality lasting for 3 months during the continuance of the Annual Máheji Fair, a Dispensary is annually set up and a general conservancy maintained.	
Nandurbár	7,079	19	48	1	4,454 2 9	4,082 6 9	1,536 2 0	2,354 2 8	96	117	Water-supply.	
Taloda	4,723	4	115	1	3,021 7 10	1,460 5 6	2,515 5 9	692 13 5	44	107	Dispensary.	
Shahadakukdel ..	4,958	1	65	..	3,485 15 1	2,176 13 9	3,643 4 6	1,008 3 3	140	129	Do.	No special improvements.
Prakásha	3,698	..	42	..	1,716 15 0	1,361 0 6	1,479 15 6	613 7 10	122	79	Do.	General conservancy maintained.
Dhulia	13,012	..	12	..	22,317 14 4	19,606 9 0	17,325 5 0	5,739 7 9	130	284	Water-supply.	
Songir	4,618	5	16	1	1,788 14 7	1,526 4 11	1,783 9 11	395 8 10	31	75	Do.	
Sindkheda	4,256	5	101	..	1,578 6 0	1,341 3 0	561 14 6	623 9 0	68	60	Improving roads, latrines	Cleaning wells.
											Purchase of land for general village purposes (answering call of nature).	Improving roads.
											Drainage	
Betávad	3,040	3	96	..	1,228 0 3	1,283 8 8	192 0 11	952 10 10	67	71	....	Road-side trees.
											...	Sinking a well.
												Preserving road-side trees.
												Drainage.
												Fencing land set a part for answering call of nature.
												Repairs to roads in the towns.
Shirpur	5,944	2	1	..	2,590 9 0	3,197 7 2	1,702 10 7	897 6 0	218	151	Same as Sindkheda	Grant-in-aid to dispensary and general conservancy.
Chopda	13,699	21	218	2	3,843 15 2	3,667 15 10	1,319 10 0	1,628 15 11	184	164	Repairing public wells	Lighting streets.
											Lighting streets	Planting and preserving road-side trees.
											Repairing roads.	
Total ..	122,973	75	1,060	10	83,879 10 8	144,468 7 5	48,747 6 6	95,094 13 10	1,640	2,007	Planting road-side trees.	

Násik Town Municipality	22,436	16	823	..	42,373 7 5	36,696 4 11	5,677 2 6	18,945 4 11	459	785	Additional latrines, pavement of a portion of Saraswati Nála at the back of Trimbak gate and meat market, water-supply and drainage.	New latrines, urinals, and underground drains.
Igatpuri do. do.	5,247	1	14	2	3,609 11 9	2,038 12 5	1,570 15 4	1,084 13 4	104	103	Drainage, a slaughter-house, fish market, extension of water-supply within and out of Municipal limits.	New temporary latrine was built. More latrine are being built.
Sinnar do. do.	10,153	16	168	5	2,641 15 5	1,480 14 4	1,161 1 1	475 11 9	202	164	Latrine accommodation	A new latrine is being built.
Trimbak do. do.	3,763	20	1	10	2,797 0 3	1,231 1 2	1,565 15 1	360 15 1	85	120	Cleaning old tanks, cleaning and paving the Godávari where it runs through the town.	Keeping the principal streets clean.
Yeola do. do.	17,461	1	6	6	11,649 1 0	12,256 10 5	839 9 2	2,685 4 4	512	362	Seven or eight latrines more, and some underground drains to carry silt, &c., out of town.	The two temporary latrines constructed last year, and the roads in the town, &c., were kept clean.
Málegaon do. do.	9,701	2	90	..	8,849 4 6	11,809 11 0	....	8,946 6 6	201	250	Drainage (impossible owing to excessve costs)	1. Protection of the river water during the hot season. 2. Keeping the roads and side gutters clean. 3. Construction of 4 roads. 4. Keeping clean the 4 pieces of lands, east, north, and south of the town, set apart for natural purposes.
Total ..	68,761	56	1,102	23	71,920 8 4	65,513 6 3	10,814 11 2	32,498 1 11	1,563	1,784		

Sanitary Works carried out of Local Funds (Civil Agency) :—

	Amount.	Total.
	Rs. a. p.	Rs. a. p.
1. *Táluka Chándor—*		
Wells at Kundana	306 0 0	
Do. at Goharan	248 0 0	
Do. at Raipur Zira	203 0 0	
		757 0 0
2. *Táluka Dindori—*		
Wells at Gopul	436 0 0	
Do. at Shindwad	200 0 0	
Do. at Bhanwad	200 0 0	
Miscellaneous	54 8 0	
		890 8 0
3. *Táluka Yeola—*		
Wells at Sheoge	30 0 0	
Do. at Visapur	30 0 0	
		60 0 0
4. *Táluka Niphád—*		
Well at Gajarwadi	350 0 0	
		350 0 0
5. *Táluka Nándgaon—*		
Three new wells	828 0 0	
One well repaired	118 0 0	
		946 0 0
6. *Táluka Málegaon—*		
Seven wells repaired	504 12 0	
		504 12 0
7. *Táluka Báglán—*		
Two new wells	460 0 0	
Three wells repaired	359 0 0	
		819 0 0
8. *Táluka Kalvan—*		
Four wells repaired	90 0 0	
		90 0 0
9. *Táluka Násik*	....	....
10. *Táluka Sinnár—*		
Repairs to well at Hiwargaon ..	100 0 0	
		100 0 0
11. *Táluka Igatpuri—*		
Repairs to well at Titole	50 0 0	
Do. at Padali	33 0 0	
Do. at Talegaon ..	60 0 0	
		143 0 0
Total Rs...	..	4,660 4 0

AHMEDNAGAR.

Names of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on the last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.
Ahmednagar City Municipality ..	32,841	None.	None.	73 Cisterns with 24 water pillars in the city which are fed by fine aqueducts.	Rs. a. p. 49,673 8 8 exclusive of balance.	Rs. a. p. 49,575 2 9	Rs. a. p. 4,207 12 8	Rs. a. p. 15,912 7 11	487	1,008
Sangamner Town Municipality ..	9,030	3 The Prawara drunk as a rule.	1 In nearly every house. water is of the river	None.	6,570 14 9	7,890 4 9 inclusive of loan money.	5,186 15 7 inclusive of loan money.	1,599 15 4	323	190
Bhingar Town Municipality	4,864	15	2	2	5,306 14 0	4,125 10 0	1,181 4 0	1,500 0 0	55	88
Total ..	46,735	18	3	75	61,551 5 5	61,591 1 6	10,576 0 3	19,012 7 3	865	1,286

No.	Names of Works.
1	Increasing the supply of pure drinking water by constructing a tank near Burhan-Nagar.
2	Main drainage scheme for the city.
3	Constructing public latrines in and outside the city.
	More latrines .. ..
	Extension of drainage .. ..

No.	Names of works Executed.
1	Constructing a waste-water drain outside the Malivada Gate.
2	Ditto a urinary in the Kalu Bagwan's lane.
3	Ditto three urinaries in the Mámledár's kacheri, &c.
4	Ditto a waste-water drain from the Brahmin Karanja to the Mangal Gate.
5	Erecting 2 water cocks outside the Deli Gate.
6	Ditto 2 water pillers in and outside the Marvadis' Panchayat wada.
7	Erecting 4 water cocks at the Stewart Cotton Market.
8	Laying a branch pipe of the Nagabai aqueduct with English galvanized ware pipes to carry water to the Stewart Cotton Market.
9	Constructing a cattle trough at the Stewart Cotton Market.

New latrines	..	..	..	..	..	Rs. 979 1 4
New gutters	..	..	..	..	..	,, 1,506 3 6
Repairs to roads	..	..	..	..	..	,, 201 4 0
Do. to drains	..	..	..	..	..	,, 261 0 6
Do. to Nimon gate contribution	..	..	..	..	..	,, 35 0 0
						Total Rs. 2,982 9 4

Drains in the main street 570 feet in length have been executed. A parapet wall and a pavement with a drain have been constructed round a well. A masonry drinking tank supplied by the acqueduct.
A bathing tank and pavement on a lower level. A cattle drinking trough.

Sanitary Works carried out of Local Funds.

No.	Names of Works.	Amount of Estimate.	Amount of Expenditure up to 31st December 1879.
	Táluka Párner.		Rs. a. p.
1	Diverting a small Irrigational Channel near the village of Hanga ..	94	42 3 3
2	Deepening a well at Chincholi ..	105	47 6 3
3	Converting a step well into a draw-well near the Hanga Gate ..	203	200 5 6
	Táluka Shrigonda.		
4	Constructing a wall round a well at Limpangaon	1,056	841 15 1
	Táluka Akola.		
5	Providing pavement round the water trough at Washira	150	148 12 1
	Total ..	1,608	1,280 10 2

POONA.

					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Poona City Municipality.	90,436	1	71	1	1,88,751 0 0	1,62,997 0 0	25,754 0 0	52,459 0 0	442	1,536	1. One meat market	1. Six seats of new latrines.
											2. One large vegetable market	2. One public urinary.
											3. One small do do	3. Extension of water-supply.
											4. Complete drainage of the city	4. New meat market (partly built in 1878).
											5. Twelve additional latrines	5. Eradicating prickly-pear.
											6. Removal of burial ground out of the City ..	6. Repairs to sewers and drains.
											7. Extension of water-supply and improvements thereto ..	7. Planting road-side trees.
											8. Removal of night-soil depôt from its present site	8. Improving vegetable market ground in Mandai.
Jejuri Town Municipality	3,102	..	4	1	2,678 1 4	2,556 7 1	121 10 3	436 0 0	67	58	None	Repairs to tank and aqueducts.
Sásvad do.	6,416	1	..	..	2,595 15 4	2,302 4 1	293 11 3	538 14 7	97	92	Water-supply	Repairs, water-supply.
Bárámati do.	4,975	6	30	..	9,235 4 5	4,127 5 10	5,107 14 7	590 6 9	114	126	Do.	Repairs to Dharmshála and roads.
												New dust-bins and repairs to old ones.
												Repairs to wells, digging springs in the river.
Talegaon Dábháda Town Municipallty	5,040	1	3	1	2,625 3 9	2,188 4 6	436 15 3	458 7 0	73	54	Water-supply	1. Clearing roads.
												2. Repairing latrines.
												3. Planting trees.
												4. Repairs, water-supply.
												5. Prickly-pear clearances.
Talegaon Dhamdharé Town Municipality	4,428	2	41	..	1,190 6 11	1,137 11 3	52 11 8	244 7 1	61	67	Do.	Repairs to roads.
Alandi do.	1,624	3	10	..	4,874 15 5	2,671 12 10	2,203 2 7	320 14 5	74	70	1. One Dharmshála	Repairs to roads.
											2. Two latrines.	
Khed do.	6,446	6	14	..	1,832 5 4	1,729 8 0	102 13 4	243 8 0	90	70	Improved conservancy	Repairs to roads.
Junnar do.	10,870	6	254	2	5,469 6 8	3,978 15 10	1,490 6 10	3,547 13 6	265	259	Water-supply	1. Prickly-pear clearances.
												2. Planting trees.
												3. Repairs, water-supply.
Indápur do.	7,740	6	176	1	1,841 6 0	1,804 15 3	36 6 9	229 2 2	24	145	Improved conservancy	Repairs to Dharmshála.
Sirúr do.	5,049	1	4	...	5,040 0 11	3,960 0 11	1,080 0 0	1,206 5 6	14	18	.....	1. Repairs to roads.
												2. Do. water-supply.
												3. Planting trees.
Lonávli do.	1,914	..	13	2	742 5 0	742 0 0	0 5 0	140 6 0	6	36	....	1. New roads.
												2. Clearing roads.
Total ..	148,040	33	620	8	*2,26,876 7 1	1,90,194 5 7	36,680 1 6	60,415 5 0	1,327	2,531		
Local Funds.												
Poona District, exclusive of Municipal Towns.	759,767	3,003	13,887	213	*1,14,210 15 3	1,02,005 7 3	12,205 8 0	....	..	..	1. Water-supply	Fifteen wells (new).
											2. Road-side trees	One Dharmshála (new).
											3. Exterpating prickly-pear	Five repairing wells.
												Planting road-side trees.
												Cutting prickly-pear, other works.

The total expenditure on Sanitary works during the year was—

	Rs.
New wells	3,409
New Dharmshálás	1,688
Planting road-side trees	1,436
Cutting prickly-pear	889
Repairing wells, tanks, and other water-supply works ..	835
Public latrines and urinaries at Poona	4,786
Extension of water-supply at Poona	13,018
Repairs to sewers and drains at Poona	3,574
New meat market at Poona	1,533
Improving vegetable market at Poona	1,179
Other works, including road repairs in Municipal Towns.	96,097

* Including balance.

SHOLA'PUR.

Sholápur City Municipality.	53,403	4	10	2	75,432 14 6	71,802 3 2	12,456 1 5	25,805 1 10	527	6,769	1. Drainage	1. Selection of a burial ground for Mussalmáns.
											2. Latrines for the town	2. Water-supply scheme in progress.
											3. Manufacture of obnoxious articles to be removed outside the town.	

SHOLA'PUR—*continued.*

Names of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on the last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of Sanitary requiremnts most urgently needed.	List of Sanitary improvements during the year.
					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Bársi Town Municipality.	15,140	13	23	3	14,689 8 8	14,558 10 7	1,608 11 3	1,376 0 4	219	747	1. Introduction of the Halákhor lsystem.	
Mádha do. ..	3,310	9	18	..	988 15 9	933 9 0	77 0 9	239 8 0	54	118		
Karmála do. ..	3,549	9	3	2	4,127 12 10	4,166 10 7	1,441 15 7	1,248 0 10	94	124	1. Latrines for the public. 2. Drainage for the town.	
Pandharpur do. ..	13,550	9	36	2	49,851 8 7	34,382 9 7	29,369 14 5	18,339 8 10	297	1,062	1. Drainage for the town.	
Sángola Town Municipality.	4,859	14	7	1	1,782 2 8	1,627 4 4	884 0 10	416 15 5	40	253	2. Enlargement of the burial ground.	
Náteputa do. ..	2,729	6	1	2	1,396 3 0	1,022 12 3	373 6 9	120 0 0	50	54		
Akluz do. ..	3,926	27	38	1	1,688 1 4	1,403 10 9	284 6 11	125 15 7	56	135		
Toal ..	100,466	91	136	13	1,49,957 3 4	1,29,897 6 3	46,495 9 11	47,671 2 10	1,337	9,262		

SA'TA'RA.

By Municipalities and Local Funds Committees.

Malcolm Peth Municipality	1,353	..	..	..	14,740 3 5	13,502 3 0	1,238 0 5	732 10 8	37	43	None	None.
Tasgaon Town Municipality.	10,528	2 78	Public 4 Private 233	2	6,750 5 1	5,746 4 0	209 6 8	526 14 5	123	131	A set of privies and place for depositing night-soil and closing of many private privies.	1. A considerable portion of the new dispensary building was completed, cost Rs. 1,783 14-11. 2. Burial aud burning-grounds purchased.
Ashta do. ..	9,156	14	13	..	790 0 0	698 5 0	270 15 4	39 12 1	133	263	1. Privies .. ..

Karád	10,043	..	..	..	7,478 10	5,211 12 7	2,266 9 3	1,330 3 6	195	219	1. Buying carts to carry filth and night-soil out of the town and employing Bhangies to drive these carts. 2. Building new latrines.	1. Constructed a gutter to carry dirty water which would accumulate in Mundái.
Vita	3,826	7	Hales. 3	..	1,305 0 9	672 9 7	632 7 2	260 12 7	106	56	Repairs to small wells "Helas"	1. Repairs to roads and gutters. ,, to Dharmshálas. ,, to "Helas."
Sátára	28,903	20	407	11	36,195 9 6	33,157 10 6	5,781 5 7	13,750 9 7	721	635	1. Water-supply to the town .. .. 2. Erecting additional latrines .. .. 3. Building drains .. .. 4. Constructing urinaries	1. Road repairs. 2. Repairs to Nálas. 3. Constructing filth pits. 4. Repairs to drains and culverts. 5. ,, to latrines. 6. Construction of a Hond in Yenkutpura Peth. 7. ,, at Golowdi.
Rahimatpur	6,278	1	64	..	1,381 0 8	1,473 8 8	598 2 7	391 15 6	117	130	1. Building public latrines .. .. 2. Making filth pits	1. Repairs to Municipal Building. 2. ,, to Roads. 3. ,, to Chowdi. 4. ,, to Dharmshála. 5. ,, Municipal toll bars. 6. Clearing out pools in the beds of the Nála.
Wái	10,917	10	734	..	7,661 13 4	6,168 3 5	1,493 9 11	1,856 12 2	199	240	1. Filtering water of the Krishna .. .. 2. Scavengers for sweeping roads	1. Filtering water of the Krishna river. 2. Scavengers for sweeping roads. 3. Sweeping Establishment.
Total ..	96,542	154	1,535	20	85,718 12 6	74,967 13 4	14,107 6 9	21,011 15 1	2,139	2,130		

BELGAUM.

Belgaum Municipality.	20,051	1	10	2	32,801 6 7	22,383 6 6	10,418 0 1	11,403 8 7	546	896	The closing of all the pee or pit privies and substituting seat privies instead which can be cleaned out daily, also constructing additional blocks of privies for the poorer classes who cannot afford to build themselves seat privies.	1,505 Notices have been issued to parties who own "Pee" or pit privies to close them and build in lieu thereof seat privies. The seat privies have since last year increased from 382 to 500 and many others are in construction and gradually the whole of the pit privies will be closed. Six new dust-bins have been constructed during the year and one extra dust cart entertained making 31 dust-bins and 12 dust carts. The Bhangi Establishment has also been increased from 8 to 10 All closed gutters have been opened and cleansed, and all public wells have also been cleansed and kept in order. One new piece of road and 4 new drains have been constructed.
Yamkanmardi do ...	5,296	3	17	1	779 9 0	794 12 1	63 9 2	288 0 0	143	214	1. Repairs to the street from Hukari gate to Dadi gate .. .. 2. Repair from Jain temple to the Tank gate. 3. Repair from Kadapa Avlaki's house to that of Chintaman Bhat 4. Repairs to Bassapa Karosi.	New Works—Street called Malapa Kaládgi. Repairs—Street running from the house of Wasedeo to the shop of Malapa Honihati.
Nipáni Municipality.	8,502	5	7	3	7,456 15 1	4,916 3 8	11,374 0 8	1,633 12 4	221	378	1. Repairs to the water pipes of Shirgupi tank. .. .. .. 2. Removal of prickly-pear within Municipal limits. 3. Opening a new dispensary which is under consideration. 4. Repairs to the roads in town. 5. Opening new privies.	1. Digging out earth in the tank. 2. Repairs to the water pipes and shafts. 3. Road cleaning.
Saundatti do. ..	6,302	2	11	..	1,865 0 0	2,462 5 11	133 3 2	697 11 8	160	82	1. Removal of prickly-pear in the town .. .. 2. Erection of street lights. 3. Construction of a large dust-bin for throwing in refuse in the town. 4. Grant-in-aid for the construction of a dispensary building	1. The improvement of the only two fresh water wells in the town called Patrjas' wells.
Yellamas Temporary Municipality.	..	6	..	..	2,344 12 11	1,974 0 5½	6,072 14 11½	156 8 6	..	..	1. Grant-in-aid for the construction of a dispensary building .. 2. Construction of new wells, 3. Watering and preserving road-side trees. 4. Repairs to wells. 5. Improvement of the draining and similar sanitary arrangement in the vicinity of the temple.	1. Removal of dirt accumulations on the Hill and similar sanitary arrangements. 2. Preservation of road-side trees.
Athni Municipality.	11,357	46	65	2	11,104 10 0	9,593 4 11	1,511 5 1	1,907 3 1	343	394	1. Building public latrines in different parts of the town Rs. 1,000 were alloted in the Budget for 1879-80 for this purpose. But the income of the Municipality during the year is too small to undertake it at once. It has therefore been proposed by the Committee to spend 500 Rs. during the next year. 2. Drinking water-supply repairs to Kumbhar well are under construction.	1. Repairs to wells (Rs. 1,444-15-8. 2. Filling up of the old ditch which was commenced last year is in progress. 3. About 10 or 12 private privies have been built under the old plan. Notices to the remaining 198 houses have not yet been issued as it has been found impracticable to procure the iron materials to build the privies according to the Crawford's plan as required by the President. Besides the privies under the new plan are very expensive and the owners do not agree to it. Still instructions are being issued by the Chairman.
Gokák	8,086	14	22	..	5,566 5 11	3,968 4 6	1,598 1 5	2,226 2 9	123	223	New latrines .. .. New dust-bins.	One dust-bin, built steps to the well, repaired and improved.
Total ..	59,594	77	132	8	61,918 11 6	46,092 6 0½	31,171 2 6½	18,312 14 11	1,536	2,187		

DHA'RWA'R.

Name of Municipality, Town or City.	Population.	Drinking Water Supply. Wells with steps.	Wells without steps.	Tanks.	Receipts during the year 1879.	Expenditure during the year 1879.	Balance at the close of the year.	Expenditure on account of Conservancy.	Number of Births during the year 1879.	Number of Deaths during the year 1879.	List of Sanitary requirements most urgently needed.	List of Sanitary improvements during the year.
					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Nárgund Town Municipality.	7,055	12	1	15	3,071 8 11	3,152 6 9	....	641 0 0	80	143	1. Removal of street refuse in the towns .. .. .. 2. Repair of the drains, &c., through which water runs to "Padwagond" Tank.	1. Repairs to dust-bins. 2. Constructing a "Kalwa" to run water from the hill side along the road from Cutchery to "Padwagond" Tank.
Navalgund do. ..	6,146	2	..	2	6,606 15 0	8,586 11 8	....	878 14 10	207	267	1. Purchase of medicines for dispensary purpose .. .. 2. Removal of prickly-pear.	1. Constructing a dispensary building at Navalgund. 2. Removal of prickly-pear.
Hubli do. ..	30,477	12	3	851	31,880 6 8	36,578 5 9	4,041 0 5	7,522 2 8	575	778	Making of new drains; culverts; pits for night-soil; dust bins; latrines and slaughter-houses	Additional latrines and night-soil pits.
Gadag Betgeri do.	14,117	1	20	150	16,345 6 10	18,777 13 5	947 1 1	1,449 10 3	217	326	Making of drains and culverts; repairs to dispensary; cisterns and dead-house.	Latrines.
Ránebennur do. ..	11,623	2	..	1	*a* 7,911 4 0	4,909 6 7	3,001 13 5	989 0 0	76	171	Repairs and improvements to roads and lanes in the town ..	1. Improvements to the Jingar and Havváldár's honds. 2. Construction of privies. 3. Making a road to Havváldár hond.
Byádgi *b* do. ..	3,301	2	..	1	1,813 8 3	339 12 4	1,473 11 11	92 10 11	83	73	....	1. Repairs to a public hond. 2. Making roads in the town.
Háveri *c* do. ..	5,618	1	2	4	857 5 1	388 12 9	468 8 4	98 4 10	61	151	....	1. Making roads in the town and building gutters. 2. Removing prickly-pear on the banks of the hond. 3. Building dust-bins. 4 Constructing privies.
Hángal *d* do. ..	4,929	..	3	2	144 9 0	139 10 1	4 14 11	38 8 10	39	79	....	Making roads in the town and building gutters.
Total ..	83,266	32	29	1,026	68,630 15 9	72,872 15 4	9,937 2 1	11,710 4 4	1,338	1,988		

a This includes the opening balance of Rs. 2,114-7-2 for 1879. *b* This Municipality was started on the 16th September 1879. *c* This Municipality was started in September last. *d* This Municipality was started in October last.

KALA'DGI.

By Municipality.												
Bijápur Town Municipality.	10,303	22	30	..	2,714 10 4	2,481 5 9	233 4 7	1,024 0 6	513	97	Scavenging and road cleaning; latrines; protection of water-supply from contamination.	Constructing bins for street refuse. Scavenging and Sweeping Establishment. Lighting.
Bágalkot do. ..	12,611	12	113	2	9,271 6 2	7,802 14 2	1,468 8 0	1,542 5 2	497	239	Cleaning drains, scavenging and Sweeping Establishment ..	Cleaning drains, removing street refuse, scavenging, &c.
Kaládgi do. ..	5,049	7	49	1	3,473 2 3	3,008 8 7	464 9 8	1,566 8 5	291	31	Sweeping, scavenging, road cleaning, trench digging, and repairs to roads, &c.	Sweeping, scavenging, road cleaning, trench digging, repairs to roads, wells, drains, &c.
Ilkal do. ..	5,899	2	63	..	13,059 2 10	5,120 13 8	7,938 5 2	1,146 12 9	189	82	Latrines and drains	Scavenging, road cleaning, and hedging ground used for necessary purposes, &c.
Total ..	33,862	43	255	3	28,518 5 7	18,413 10 2	10,104 11 5	5,279 10 10	1,490	449		

KA'NA'RA.

Kárwár Town Municipality.	13,263	1	68	650	12,167 9 6	11,073 2 1	1,094 7 5	3,631 8 5	337	303	Drainage of the streets and roads	1. Drainage of the main streets and roads. 2. Filling in low marshy ground near the town.
Kumta do. ..	10,932	..	81	26	13,619 11 0	9,595 11 1	4,023 15 11	975 8 6	223	272	Improvements of conservancy arrangements	Improved conservancy.
Gokarn do. ..	3,976	312	271	21	1,336 13 11	564 3 2	772 10 9	168 4 2	56	78	Ditto ditto	Do. do.
Sirsi do. ..	4,611	31	379	7	10,661 6 3	7,005 0 7	3,656 5 8	1,103 2 4	43	215	Improvement of town roads and drainage	Improved drainage and conservancy.
Haliyál do. ..	5,137	18	24	5	6,519 14 2	4,231 4 7	2,288 9 7	2,758 1 2	214	255	Improvements to Devgiri Tank	1. Improvement of water-supply. 2. Do. of conservancy.
Total ..	37,919	362	2,377	709	44,305 6 10	32,469 5 6	11,836 1 4	8,636 8 7	873	1,123		

By Local Funds.					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.					*By Local Funds.*
Kárwár	45,131	4	688	650	13,489 3 11	21,961 3 6	....	181 3 7	1,123	1,241	1. Construction of wells and tanks		KA'RWA'R TA'LUKA.
Kumta	90,074	22	8,677	1,465	22,209 0 1	14,547 6 7	7 661 9 6	200 0 0	2,125	2,663	2. Clearing wells and tanks, &c.		*Original Works.*
Honávar .. .	84,214	256	7,871	948	10,953 2 3	9,625 10 0	1,327 8 3	301 14 9	1,814	2,691			1 Well at Kyga.
Siddápur	31,810	134	1,363	474	5,828 1 10	6,031 9 7	....	794 0 0	775	1,286			2. Do. at Gopshitta.
Sirsi	45,481	123	2,220	1,328	8,304 15 7	9,985 8 3	....	....	903	2,361			KUMTA TA'LUKA.
Yellápur	30,815	32	474	897	5,486 10 5	4,644 9 3	842 1 2	676 3 4	825	1,462			*Repairs.*
Supa	49,456	89	244	471	5,646 0 2	8,191 3 10	....	322 3 11	1,744	1,343			3. Town roads at Ankola and Benkikodle.
													HONAWAR TA'LUKA.
													Repairs.
													4. Town roads at Honávar and Bhatkal.
													SIDDA'PUR TA'LUKA.
													Repairs.
													5. Tank at Honur Gundi.
													6. Patekeri Tank at Bilgi.
													7. Town roads, Siddápur.
													YELLA'PUR TA'LUKA.
													Original.
													8. Well at Oodamaki.
													9. Baswan well, Yellápur.
													Repairs.
													10. Conservancy at Yellápur.
													11. Yellápur and Mundgod Town roads.
													SUPA TA'LUKA.
Total ..	376,981	660	21,536	6,233	71,917 2 3	74,967 3 0	9,831 2 11	2,475 9 7	9,309	13,047			12. Well at Joida.
													13. Kumbarwada Tank.

RATNA'GIRI.

(Report not received.)

KOLA'BA.

By Municipality.												
Alibág	5,576	9	353	2	9,378 5 6	9,351 8 8	26 12 10	6,110 15 3	56	182	None	None.
Pen	6,514	4	136	8	6,896 4 11	6,792 11 0	103 9 11	2,791 0 9	195	189	1. Removing mud from a tank used for drinking purposes ..	1 A privy for the Dispensary.
											2. Laying pipes in the town for distributing water from the water works.	2. Placing railings round the "Howds" belonging to the water works.
Rohe-Ashtami ..	5,207	2	50	4	5,170 6 9	1,639 9 10	3,530 12 11	....	103	95	1. Works for the supply of water by an aqueduct in the town.	
Mahád	6,631	3	125	9	5,296 9 3	5,229 1 4	67 7 11	3,000 10 5	105	145	1. Privy at the Dispensary	Drains and gutters.
											2. Room at the Dispensary for females.	None.
Total ..	23,928	18	664	23	26,741 10 5	23,012 14 10	3,728 11 7	11,902 10 5	459	611		

THA'NA.

Thána Town Municipality.	14,299	4	278	13	18,990 12 7	15,590 8 2	10,112 8 2	6,374 5 5	297	338	1. Water-supply	1. New latrines .. .. .. Rs. 41 0 3
												2. Dust-bins .. .. ,, 260 8 6
												3. Dust-bins, wooden .. .. ,, 42 0 0
Bhiwndi do. ..	15,819	11	154	5	10,912 13 2	10,228 13 2	1,283 13 0	1,944 1 7	154	185	1. Construction of gutters	1. Water pipes .. .. .. ,, 141 1 10
											2. Water-supply.	
											3. Dust-bins.	
											4. New vegetable market.	
Kalyán do. ..	12,805	18	385	8	11,650 1 3	11,343 0 1	6,418 14 2	3,873 15 7	281	121	1. Water-supply	None.
											2. Public latrines.	
											3. Construction of drains.	
Panvel do. ..	10,135	2	95	8	3,543 12 9	3,687 5 8	877 9 1	1,629 7 1	73	226	1. Lighting	
Bassein do. ..	9,356	3	334	10	7,210 13 8	6,744 1 9	1,530 8 7	1,254 6 8	223	301	.....	1. Cattle-pound .. .. Rs. 76 0 0
												2. New well .. .. .. ,, 185 14 11
Máhim do. ..	5,791	3	283	23	2,758 8 8	2,859 6 10	265 9 7	432 10 1	126	138	1. Public latrines	.....
											2. New markets.	
Bándora do. ..	11,057	..	257	10	16,281 4 7	15,517 6 6	763 14 1	2,148 12 2	299	237	1. Construction of drains	.....
											2. Public latrines.	

THA'NA—*continued.*

Names of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on the last day of the year.	Expenditure on Conservancy.	No. of Births during the year.	No. of Deaths during the year.	List of Sanitary requirements most urgently needed.	List of Sanitary improvements during the year with their cost.
					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Uran Town Municipality.	8,690	7	172	9	8,423 6 7	5,629 12 8	2,793 9 11	1,106 0 11	170	221	1. Vegetable Market. 2. Dust-bins. 3. New railing to tank.	Rs. a. p. 1. Public latrines .. 420 0 0
Total ..	87,952	48	1,958	86	79,771 9 3	71,600 6 10	24,046 6 7	18,763 11 6	1,583	1,767		

List of Sanitary Works carried out during the year 1879 by Local Funds in the Thána District.

No.	Táluka.	Description of the Sanitary Works carried out.	Cost of each work.
			Rs. a. p.
1	Dáhánu .	1. New well at Wavre Vira ..	867 14 8
		2. Do. at Talasri	787 0 0
		3. Do. at Dahad	678 3 10
2	Máhím ..	1. New well at Borande	866 5 0
		2. Do. at Dande	899 10 7
		3. Do. at Nowje	685 11 8
		4. Do. at More Kuran ..	764 15 3
3	Bassien ..	1. New well at Nilemore	751 12 8
		2. Do. at Paigachapada ..	751 7 0
4	Sálsette ..	1. New well at Marol	791 13 9
		2. Do. at Pavne	612 9 9
		3. Do. at Yewoor	589 14 6
		4. Do. at Marol (western side).	441 12 9
		5. Do. at Kavesar	306 9 0
5	Kalyán ..	1. New well at Gothavali ..	113 8 0
		2. Do. at Yewe	208 0 0
		3. Do. at Nádgaon	108 7 0
		4. Do. at Belevli	569 1 3
		5. Do. at Ushiel	533 6 4
		6. Parapet wall to well at Kulgaon.	50 0 0
6	Bhiwndi ..	1. New well at Nandkar	1,117 12 5
7	Wada ..	1. New well at Chinchghur ..	639 4 6
		2. Do. at Musarne	640 14 6
8	Panvel ..	1 New well at Dighasi	493 14 0
		2. Do. at Kalhe	693 3 8
		3. Do. at Apte	923 8 6
		4. Do. at Pale Khurd ..	176 3 5
9	Karjat ..	1. New well at Mandwan ..	775 10 0
		Total ..	15,746 10 0

SURAT.

By Municipality												
Surat City	107,149	4	72	..	2,70,668 13 0	2,67,105 8 7	3,563 4 5	78,311 13 2	1353	2,305	Water-supply	Repairs to Markets and Slaughter-house. Do. to Civil Hospital. Do. to Parek Dispensary. Do. to Public wells. Do. to Public Park. Do. to Dharmshála. Do. to Old Dust-bins. Do. to Night-soil Depôts roads. Constructing well at do. Repairs to Public Latrines. Do. do. roads. Constructing new cylindrical barrels and water carts for sprinkling water on roads, &c.
Bulsár Town ..	11,315	..	58	6	13,007 11 0	12,977 8 0	755 13 0	956 0 2	37	92	Night-soil Depôt is urgently needed	Watering roads and cleaning them once a day. Destroying prickly-pears. Lighting, &c.

Ránder Town ..	Annual Census 9,357 Census for 1872. 10,280 834 11,114	..	8	..	12,679 14 3 besides Rs. 440 12 11 on account of last year's balance.	12,331 13 3	*788 13 11	7,078 11 5	269	382	1. Provision for Public Latrines.. .. .. 2. Filling up the dirty water tank near Sahabhagal.	No money to carry on any public works. The Town is situated on the River Tapti, and the people chiefly use the river water for drinking purposes.
Mándvi do. ..	4,147	1	114	..	4,695 1 6	5,285 9 0	1,494 8 4	706 1 0	84	130	There are no latrines. Four are urgently needed. Provision has been made in the Budget Estimate for 1880-81 for erecting one.	1. Noxious vegetation cut down. 2. New dust-bins constructed. 3. The Town is kept clean by Bhangis employed for the purpose by the Municipality. 4. The main roads watered during the hot season.
Total ..	133,725	5	252	6	3,01,051 7 9	2,97,700 6 10	6,602 2 8	87,052 9 9	1,743	2,999		

* Rs. 416-8-0 on account of deposits to be returned are included in the sum of Rs. 788-13-11. Actual balance is Rs. 372-5-11.

By Local Funds.												
urat	503,136	88	11,097	1,899	Including the balance on the 1st day of the year. 1,95,415 8 3	2,18,487 14 0	23,072 5 9 Expenditure over receipts.	16,462 6 1 as detailed in the column of remarks.	11,399	13,777	Supply of drinking water..	No expenditure on Sanitary work properly so called, was incurred, expect on tanks and wells mostly used for drinking purposes, on which a sum of Rs. 26,814-9-3 was expended during the year as under— Tanks.. .. .. Rs. 10,164-7-1 Wells .. .. ,, 16,650-2-2

	Rs.	a.	p.
Vaccination charges	2,423	10	7
Dispensary do.	5,104	2	11
Keeping Parabs and Hávádás for drinking water.. ..	542	10	11
Road-side trees	1,945	6	11
Watering roads	2,248	11	10
Water-courses	4,071	2	9
Visámás or Platforms for resting head-loads on high roads ..	126	8	2
Total ..	16,462	6	1

BROACH.

Broach City Municipality.	36,932	3	29	2	66,164 8 6	56,658 12 8	7,505 11 10	7,814 7 3	409	1,020	Drainage, water-supply for the town and public latrines	Repairs to roads, construction of the Rampart Row, removing and rooting out prickly-pear from within the Municipal limits and clearing out and repairing wells. Amount expended Rs. 8,315-15-10.
Anklesvar Town Municipality.	9,289	4	14	1	14,242 11 9 With balance from previous year 4,204 7 3	11,208 5 5	3,034 6 4	1,383 2 10	169	356	Nil	All the thoroughfares, streets, by-lanes, &c., in the town are cleaned twice every day. Nearly the whole town is watered once daily in the months of November, December and January, and twice from the 1st of February to the 15th of June. No other improvements made.
Jambusar Town Municipality.	10,478	2	13	1	4,696 11 11 With balance previous year 796 15 1	3,470 10 9	1,226 1 2	816 0 0	42	489	Pavement to the Adampol slope.. .. .. Do. to Muli slope. Well for water-supply. Retaining wall of the Nagesar Tank.	Watering the roads, lighting, repairs to roads, cleaning roads. Above works are done annually.
Total ..	56,699	9	56	4	85,104 0 2	71,337 12 10	11,766 3 4	10,013 10 1	620	1,865		
District L. F. Committee.	350,322	1	19	12	1,29,067 0 0	1,08,826 0 0	20,241 0 0	....	..	..	Nil	Repairs to 27 roads, including Broach and Jambusar road, Anklesvar to Hánsot road and Pálej to A'mod road. Construction of Broach and A'mod road.

KAIRA.

By Municipality.												
Nadiád Municipality.	21,927	3	141	10	21,327 10 10	18,673 11 3	6,449 13 5	840 5 0	592	879	Gutters, urinaries, &c.	Metalled and drained road in the town and Khariats.
Kaira do. ..	12,681	..	14	..	8,477 [illegible] 4	7,821 13 11	2,067 6 8	1,607 8 0	189	362	1. Wall on river side .. .. 2. Bund at Ahmedabadi gate.	A portion of the wall on the river side has been constructed. Packa wall round latrine, completed.
Mehmadabad do. ..	8,065	1	13	1	2,715 6 10	2,589 1 5	1,590 11 5	365 0 7	273	391		A wall round the ground set apart for previes was erected at the Nadiád gate.
Dákor do. ..	7,740	1	101	1	7,374 6 1	7,185 15 10	1,076 0 10	1,528 12 3	196	542	1. Receptacles for rubbish matter .. .. 2. Carts to remove do. .. .. 3. Fencing privy grounds. 4. Land to be purchased for depositing sweepings.	1. Construction of and repairs to urinaries. 2. Repairs to privies.
Kapadvanj do. ..	13,982	4	140	..	7,247 9 9	6,625 0 2	1,739 2 10	885 11 0	264	285		1. Receptacles for sweepings. 2. Improving privies. 3. Railing to wells. 4. Cleaning do.
Total ..	64,395	9	409	12	47,142 2 10	43,895 10 7	12,923 3 2	5,227 4 10	1,514	2,459		

KAIRA—*continued.*

Names of Municipalty, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on the last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of Sanitary requirements most urgently needed.	List of Sanitary improvements during the year.
By Local Funds.					R. a. p.	Rs. a. p.	Rs. a. p.					
Mehmadabad Táluka	85,754	1	4	1	18,565 14 5	16,942 1 3	1,623 3 2	..	1,609	2,520	....	1. Construction of a well for wind-pump at Kaira. 2. Repairs to the Mehmadabad Dispensary and the Civil Hospital, Kaira. 3. River approaches at Hejrabad. 4. Tree planting. 5. Repairs to Táluka wells.
Mátar do.	78,673	..	11	3	38,472 0 7	37,540 8 11	931 7 8	..	2,080	3,947	....	1. Tanks at Singiwara and Bamangam. 2. Culvert at Bhimkare. 3. Road-side tree planting. 4. Wells at Pala, Chonor, Kathoda, Tranja, Undhela, and Traj. 5. Repairs to Táluka wells.
Thásra do.	85,601	..	7	1	14,582 8 11	12,377 8 3	2,205 0 8	..	1,559	2,551	....	1. Wells at Dhudadra, Pali and Mahi Itadi. 2. Tank at Baladha. 3. Railing to wells. 4. Repairs to do.
Kapadvanj do.	86,742	..	7	2	12,952 6 5	10,718 15 9	2,233 6 8	..	1,630	1,978	....	1. Repairs to Kapadvanj Dispensary. 2. Tanks at Chikhlod and Dahlap. 3. Well at Sorna, Rumpura, Bhutia. 4. Repairs to wells and step wells. 5. Road-side trees.
Nadiád do.	151,734	7	3	5	60,632 0 6	58,698 12 9	1,963 3 9	..	3,105	4,622	....	1. Privies for the High School at Nadiád. 2. Tanks at Kanjoda, Kanjri Undhela, Keriavi; wells at Sodpura, Dawapura, Chunel, Dawda. 3. Repairs to Nadiád Dispensary. 4. Railing to wells. 5. Repairs to do. 6. Repairs to Bhumel tank.
Borsád do.	144,528	5	1	5	26,390 0 1	23,728 1 5	2,661 14 8	..	2,279	4,880	....	1. Tanks at Dantelo, Krol, Pandoli, Kathana, and Dalo. 2. Repairs to Táluka wells. 3. Wells at Amlol, Banejda and Napa. 4. Clearing prickly-pear from the town of Borsad.
A'nand do.	149,952	..	5	15	36,522 5 5	33,992 4 9	2,530 0 8	..	2,961	5,200	....	1. Tanks at Ajarpura, Kásar, Samarkha, Od, Rasnol, Khambholaj-Rani, Waghasi, Bhojkuwa, Fatepur, Lambwel, Ajarpura, and Hadgud. 2. Wells at Vehera, Pansora and Khankuwa. 3. Road-side tree planting. 4. Railing to Táluka wells. 5. Repairs to do. 6. Do. to tanks.
Total ..	782,984	13	38	32	2,08,117 4 4	1,93,998 5 1	14,148 5 3	..	15,223	25,698		

PANCH MAHA'LS.

By Local Funds.												
Panch Mahals ..	210,743	153	1,447	711	43,310 10 9	64,447 14 11	21,137 4 2 at Debit.	336 0 0	2,121	9,895	Drainage and latrines in Kasha towns and large villages, and also wells in certain places.	Four new wells and improvements and repairs to 6 tanks and 6 wells. Expenditure on account of Medical relief and Vaccination Rs. 3,359-8-4.

By Municipalities.												
Godra Town Municipalties.	10,641	1	69	1	*4,625 7 2	3,369 15 7	1,255 7 7	1,318 0 11	55	303	Drainage and Latrines.	
Dohad do. do..	11,472	..	1	1	*5,503 10 6	2,120 8 8	3,383 1 10	984 2 5	129	242	Do. do.	
Total ..	22,113	1	*70	2	10,129 1 8	5,490 8 3	4,638 9 5	2,302 3 4	184	545		

*Includes balances of previous years.

AHMEDABAD.

By Municipalities.				Masonary tanks for the storage of water in houses.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				*New Works.*
Ahmedabad.. ..	116,873	3	4	8,508	2,23,124 6 5	1,86,411 7 4	90,989 8 11	54,557 12 2	4,748	8,485	1. Water supply to the town (the subject is under consideration). 2. Widening roads in some parts of the city. 3. Increase of urinaries. 4. Do. of public privies. 5. Side drains to roads. 6. Better conservancy carts. 7. The present length of packa roads is 20¼ miles and kacha road 8½ miles, the latter may be made into a packa road as funds available.	1. Rebuilding bridge at Raikhad. 2. Culvert under cross road on the Railway suburb. 3. Addition or alteration to Delhi gate. 4. Parabdi at Khas Bázár. 5. New Police station at Raikhad. 6. Providing brick flooring and mat ceiling to Fire Engine stations. 7. Wooden railing to wells. 8. Addition and alteration to Ganesh Bari. 9. Culvert under road leading to Premabhai gate. 10. "Ksamas" around trees in Bhadar. *Repairs.* 11. Repairs to city walls. 12. Do. to Police stations. 13. Do. to packa gutters. 14. Excavating kacha gutters before the setting in of the monsoon. 15. Repairs to culverts and drains. 16. Do. to kacha and packa made roads. 17. Do. to Public privies and urinals. 18. Do. to Municipal Office buildings. 19. Do. to Lal Darivaja buildings. 20. Do. to shops at Maneckchok and Shahapur. 21. Do. to Market buildings 22. Do. to Cattle-pounds. 23. Do. to Fire Engine stations. 24. Do. to city gates and other buildings. 25. Do. to Bechardas Dispensary buildings. 26. Do. to Raipur Dispensary buildings. 27. Do. to Kagda Peith Hospital. 28. Do. to Water works buildings. 29. Do. to Reservoirs and stand-pipes. 30. Do. to railing at the Dana Peith. 31. Do. to Bhadar clock. 32. Do. to Rani Sipri Mosque. 33. Do. to step well in the Railway suburb.
Dholka	20,854	1	33	..	10,530 11 3	11,001 1 6	1,223 0 1	943 15 6	259	84	Leather pipes for Fire Engines. Latrines increased. Staff of scavengers. Provision for some substitutes for the existing private cess-pools. Urinals.	Tank repairs.
Viramgám	19,661	1	12	3	27,959 13 3	26,438 8 7	4,666 11 6	4,173 2 5	136	515	.....	Purification of one well.
Prantej	8,341	5	126	4	3,378 11 6	2,836 1 9	1,569 3 6	268 11 4	208	347	Surface drainage in the lower parts of the town.	1. Repairing one well. 2. Repairing one cattle trough.
Morasa	7,436	7	68	..	2,073 6 0	3,248 11 3	1,536 12 2	591 4 3	59	105	.....	1. Four wells grated over. 2. One well repaired.
Gogha	9,571	6	29	9	3,528 3 3	3,828 6 5	741 13 8	695 5 0	103	192	Repairs to tanks. Increased staff of scavengers. Provision of public receptacles for refuse water in the place of the existing private cess-pool, urinals, improved latrine accommodation.	Repairs to tanks and wells. Scavenging. Repairing pipes of the water works. Public privies. Repairs to Dock.
Dhandhuka	9,519	4	28	5	5,604 4 2	5,669 10 1	1,179 10 2	498 4 7	81	502	Increased staff of scavengers. Latrines. Provision of some substitute for the existing private cess-pools, urinals.	Scavenging Vaccination. Municipal garden. Filling in drinking troughs for cattles. Repairs to wells and tanks. Making new roads.
Total ..	192,225	27	300	8,529	2,76,199 7 10	2,39,433 14 11	1,01,906 12 0	61,728 7 3	5,594	10,230		

AHMEDABAD—*continued.*

Names of Municipality, Town or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on the last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of Sanitary requirements most urgently needed.	List of Sanitary improvements during the year.
By Local Funds.					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Daskrohi	130,610	..	..	..	27,737 12 2	38,310 15 11	.....	.....	..	..	.....	1. Providing new steps and stone slope in the inlet of the Kankaria Tank.
Dholka	113,375	..	4	1	21,442 5 2	22,428 15 7	.....	.....	..	..	.....	1. Well at Vasna Kelia. 2. Do. at Dholka near the Astona Gate. 3. Do. at Badarkha. 4. Do. at Syal. 5. Well and trough at Dev Dholera. 6. Do. do. at Dhingda. 7. Do. do. at Reidpura near Saroda. 8. Do. do. at Dewadthal. 9. Drain to a tank at Bawla.
Viramgám	128,044	..	4	..	12,326 0 10	6,904 10 4	5,921 6 6	.....	..	..	.....	1. Well at Vichan. 2. Do. at Lia. 3. Do. at Rakhiana. 4. Do. at Vithlapur. 5. Do. at Jhund Station. 6. Do. at Khengariá.
Parántij	106,934	..	..	..	7,344 8 4	10,367 13 0	.....	.....	..	..	.....	Well at Trambak.
Gogha	33,829	..	1	..	1,797 6 8	1,493 13 0	303 9 8	.....	..	..	.....	Well and trough, Naniwavdi.
Dhandhuka	124,807	..	1	..	13,144 15 8	9,099 5 10	4,045 9 10	.....	..	..	.....	Well on the Ranpur Road.
Sánand	73,229	..	1	..	12,056 10 3	10,721 12 4	1,334 13 11	.....	..	..	.....	Do. at Charodi.
Total ..	710,891	..	11	1	96,349 11 1	99,327 6 0	11,605 7 11	.....	..	..		

KURRACHEE.

By Municipalities												
Tatta	7,951	1	1	3	11,488 0 0	8,522 12 3	13,163 14 8	1,839 5 7	17	89	.....	} Besides the wells and tanks given in this statement, which belong to the Municipality, there are 5 tanks and 1 well at Tatta, all used for drinking purposes.
Keti	2,199	..	..	..	6,528 0 8	4,555 7 4	44,037 11 1	736 0 5	30	46	.....	}
Kurrachee	56,753	..	..	..	2,5[illegible]89 3 6	2,39,129 13 3	18,559 6 3	48,920 15 9	560	1,583	Water-supply drainage	Surface drainage, road metalling, building masonry bunds to protect certain districts from being flooded.
Dádu	2,198	..	5	1	2,724 13 4	2,299 7 11	3,509 13 8	680 2 8	8	54	1. Conservancy cart required.	
Johi	4,419	..	4	..	1,687 10 8	1,046 5 8	1,578 10 1	304 13 6	18	21	.....	.....
Schwan	4,294	..	4	..	7,262 7 9	7,038 8 10	753 12 6	1,769 13 4	52	81	New latrine required to be built	.....
Bubak	2,759	..	..	..	3,809 8 7	2,160 8 8	4,963 2 7	666 6 10	65	86	New latrines.	.....
Mánjhand .. .	2,872	..	..	..	2,047 4 3	1,930 4 5	1,968 11 11	373 13 0	14	18	Do.	
Kotri	7,949	..	28	..	14,252 2 1	17,693 1 0	6,215 15 4	3,544 4 6	34	237	1. Cart, 4 new latrines and tanks in the streets used as receptacles of filth to be filled in. New arrangement of stalls in meat and fish market much required. Nuisance Inspector much required.	.....
Mirpur Batoro ..	2,846	..	3	3	6,039 8 0	4,791 2 3	3,018 12 11	792 2 3	17	131	.....	.....
Total ..	94,240	1	45	7	3,14,128 15 11	2,89,767 7 7	97,769 15 0	59,627 13 10	815	2,346		

HYDERABAD.

By Municipalities.														
Hyderabad	41,152	1	46	2	1,20,300 7 0	*1,30,816 13 3	....	17,626 9 10	936	1,454	1. Completion of water works	Water works .. .. .. Rs. 22,887 3 0		
											2. Improved conservancy	Improved latrines		
											3. Improved drainage	Pir Mir Mahomed .. .. .. Rs. 547 10 3		
												Total .. 23,434 13 3		
Tando Jam	2,223	..	7	..	511 1 3	*725 4 4	....	....	21	23	.....			
Tando Muhammad Khán	3,412	..	17	..	5,570 13 11	*6,445 4 6	....	889 3 2	50	112	Trenches for burial of night-soil (about to be dug) wells require cleaning, low open spaces in town require drainage for rain water.	None of any importance.		
Hála	4,096	..	23	1	3,199 13 4	*3,631 8 1	....	504 0 0	40	44	A well is required to be sunk	Improvement to market.		
Matári	4,920	..	16	1	3,843 5 11	2,350 15 3	1,492 6 8	624 0 0	61	236	..	None of importance.		
Tando Alahyar ..	3,913	..	20	1	6,879 14 0	6,180 9 0	699 5 0	1,090 7 10	22	64	None	Do.		
Tando Adam ..	3,457	..	9	1	9,444 6 4	6,319 1 3	3,125 5 1	610 2 5	60	63	Do.	Do.		
Nasarpur	3,106	..	4	..	1,364 13 4	*1,528 2 1	....	472 12 5	21	54	Do.	Do.		
Shahdádpur ..	2,232	..	5	2	2,756 13 8	1,686 10 7	1,070 3 1	396 0 0	31	56	Do.	Do.		
Khandiáro	2,558	..	13	3	1,620 4 3	*2,498 2 9	....	378 0 0	45	70	.....	Improving wells. .. .. .. Rs. 147 0 0		
Naushahro	2,950	..	8	1	1,701 13 8	*2,464 0 10	....	411 13 4	45	40	.....	Improving steps to the rank .. .. „ 150 14 0		
Tháru Sháh	2,219	..	6	2	1,272 0 5	*1,950 11 11	....	372 0 0	16	64	.....	Improving steps to naulakhi within the Municipal Limits .. .. .. „ 75 0 0		
Bhiria	2,549	..	6	1	2,133 8 6	1,811 12 2	321 12 4	307 0 0	16	60	.....			
Moro	2,002	..	9	1	943 12 8	*1,328 15 8	....	279 6 0	29	18	.....			
Total ..	80,789	1	189	16	1,61,543 0 3	1,69,737 15 8	6,709 0 2	23,961 7 0	1,393	2,358				

* Excess over income met from last year's balance.

By Local Funds.

											No.	Names of Works.	Amount Expended.	No.	Names of Works.	Amount Sanctioned.
Hyderabad Collectorate	723,883	..	..	..	1,32,748	98,824	33,924	....	..	..		*Naushahro Division*	Rs. a. p.		*Naushahro Division.*	Rs. a. p.
											1	Well near Ghát Kundan	465 0 0	1	Protecting walls and a cistern to Sharufdin's well at Kandiaro	150 0 0
											2	Do. at Pad Idan	400 0 0			
											3	Protecting wall and a cistern to Sharufdin's well at Kandiaro	75 0 0	2	Cistern to the well at Mahrab Khan's Masjid ..	50 0 0
											4	Cistern to the well at Mahrab Khan's Masjid.	25 0 0	3	Do. and shed to Daria Khan Sahto's well at Dhodha	50 0 0
											5	Do. and a shed to Daria Khan Sahto's well at Dhodha	25 0 0	4	Do. at Pario's well on main road	40 0 0
														5	Well at Satardino	500 0 0
												Táluka Hyderabad.			*Hála Division.*	
											6	Contribution towards water-supply scheme at Hyderabad.	6,000 0 0	6	Well at Dabko on the Gorchani and Samaro road	700 0 0
														7	Well at Burro.	800 0 0
														8	Do. Dalore.	800 0 0
														9	Do. Pir Manjali.	800 0 0
														10	Well between Zour and Masu-Bhurgri ..	900 0 0
														11	Contribution towards the water works at Hyderabad.	5,400 0 0
												Rs. ..	6,990 0 0		Rs. ..	10,190 0 0

THAR AND PA'RKAR.

By Municipalities.											
Umarkot	3,999	..	3	3	6,823 9 0	6,620 9 1	202 15 11	837 2 9	53	74	
Mitti	2,580	..	1	1	2,658 8 9	2,803 7 6	....	351 4 0	24	40	
Nagar	2,425	..	7	2	3,997 2 11	2,666 13 8	1,330 5 3	307 0 8	12	34	Stalls for selling vegetables, and one well are proposed to be constructed in 1880.
Total ..	9,004	..	11	6	13,479 4 8	12,090 14 3	1,533 5 2	1,495 7 5	89	148	

Names of Municipality, Towns or City.	Population.	Drinking Water Supply. Number of Wells with steps.	Number of Wells without steps.	Tanks.	Income during the year.	Expenditure during the year.	Balance on the last day of the year.	Expenditure on Conservancy.	Number of Births during the year.	Number of Deaths during the year.	List of Sanitary improvements most urgently needed.	List of Sanitary improvements during the year.
SHIKARPUR.												
					Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.				
Shikárpur	40,400	..	170	5	77,073 8 1	57,346 14 7	19,726 9 6	10,084 15 10	776	1,154	Paving the main bázár new meat market, and new troughs to wells, and sinking, absorbing well for percolation and drainage water.	Cleaning 9 wells. New fruit market, Filling in hollows round about city.
Sukkur	13,318	8	15	1	1,24,796 3 0	96,104 2 8	†74,034 4 6	11,567 12 3	131	451	Raising the level of lanes and streets and filling up hollows to carry off surface drainage.	Improvements to market.* New beef market. Improvements to latrines. Repairing and plastering latrines. Cleaning and repairing side surface drains and culverts, Clearing town sewers. Filling up hollows. Raising the level of lanes. Clearing camp grounds, filling with earth. Old slaughter-yard. Clearing and repairs to wells.
Garhi Yasin ..	4,808	..	14	..	7,320 9 3	5,294 0 7	†2,561 1 10	1,102 11 10	35	65	None	None.
Rohri	8,580	..	..	..	14,711 9 6	13,355 12 1	†7,583 8 7	6,519 1 10	262	216	Do.	Trenches have been dug for burying night soil. Three new latrines were made. Old latrines were white-washed and cleaned, and a place was made for slaughtering animals.
Ghotki	3,689	..	1	..	3,009 4 2	2,162 0 1	†2,325 6 5	358 2 7	67	52	Do.	Roads and bridges have been repaired and the town cleaned.
Ubauro	2,585	..	*8	..	1,032 14 8	1,021 8 4	†496 0 9	156 0 0	27	34	Do.	One well was repaired and the town cleaned.
Mehar	2,174	..	19	‡3	1,835 13 9	1,383 12 6	452 1 3	231 2 3	27	45	Latrines	Two public wells repaired.
Khairpur	2,039	..	6	‡1	1,847 2 4	1,146 5 6	700 12 10	179 13 5	5	24	Do.	One public well repaired. The construction of latrines is undertaken this year.
Lárkhána	10,643	..	18	3	21,338 3 1	20,856 8 6	481 10 7	2,264 11 9	159	145	Clearing and repairing wells, which is nearly over. Nuisance Inspector required.	Troughs to 2 wells, shed over 1 well. Wall to 2 Ghar bathing steps. Latrines and wells repaired. Clearing jungle.
Kambar	3,518	..	2	2	6,820 11 7	5,620 9 10	1,200 1 9	912 4 3	105	139	Fish and meat market, &c., and improvements to wells.	Clearing jungle. Wells and latrines repaired.
Rato-dero	3,057	..	3	2	4,549 1 5	4,005 5 2	543 12 3	1,008 15 11	40	51	Clearing and repairing wells.	Ten new shops for fish and meat markets. Wells repaired.
Total ..	94,811	8	256	17	2,64,335 0 10	2,08,296 15 10	1,10,105 5 9	34,385 11 11	1,634	2,376		

* There are 42 Wells, but only 8 for drinking purposes.

† These include former year's balances.

‡ Tank water not used for drinking purpose.

UPPER SIND FRONTIER DISTRICT.

By Municipality.												
Jacobabad	5,232	..	33	2	40,202 12 0	34,176 6 7	6,126 5 5	2,973 4 7	90	87	Latrines in vicinity of Railway station. Proper building for Railway work people.	Market shops raised. Butchers shops white-washed. Slaughter yard removed from vicinity of Railway to west side of town. Water carts made for removal of refuse water.

SECTION VI.

GENERAL REMARKS.

The Sanitary Department was formed at the close of 1876, and now, at the end of its third year of existence, it may not be altogether out of place to speak of its organization, of the leading objects for which it was organized, and of the method under which it works. Prior to its formation there was a Vaccination branch of the Medical Department with its Superintendent General, Superintendents, Assistants, and Vaccinators, and under Dr. Pinkerton it became as efficient as it could be with the materials at command. At this time the Sanitary Commissioner was the only officer in the Presidency who was charged with sanitary duties, and he held much the same position he holds now. He never had, nor has he now, any executive functions, but he was, and is, the adviser of Government on sanitary matters generally, and on questions relating to the Public Health. In addition he compiled, and still compiles, the Birth and Death Statistics for the Presidency, submitting the results in an annual report. In 1875 it was thought that the officers of the Vaccination branch might be employed with advantage on such sanitary duties as are not executive, and orders to that effect were issued. Under these orders their primary duties were connected with vaccination, and in regard to them they were under the Superintendent General: in all that related to the Birth and Death Registers, to Conservancy, and to Sanitation generally, they were under the Sanitary Commissioner, and in their inspection of Dispensaries they were to report to the Deputy Surgeon-General of the District. This scheme was approved by Government, and duly promulgated, but for obvious reasons it remained little more than a dead letter, and at length, after much correspondence, it was finally resolved, that the Vaccination branch should be made a new department, and placed under the Sanitary Commissioner. The post of Superintendent General was abolished, the Superintendents became Deputy Sanitary Commissioners with increased emoluments, and greater responsibilities, and the former Assistants are the present Inspectors: the Districts too were recast so as to conform to those for Birth and Death Registration. With a view to a more complete assimilation it was suggested, that the vaccination statistics should be kept for the calendar year as are those of Births and Deaths, but this was not allowed, so now whilst the latter run from January to January, the former are from April to April.

Organization.

Sanitary Commissioner.

G. R. No. 664, March 4th, 1875.

1.—G. R. No. 3750, December 16th, 1875.

2.—Government of India letter, Home Department, Sanitary, No. 183, July 17th, 1876.

3.—Government Resolution No. 3289, October 23rd, 1876.

2. The subjoined statement gives the strength of the Department, together with its cost :—

Statement showing detailed monthly cost of the Sanitary Department of the Bombay Presidency.

	Districts.	Sanitary Commissioner.		Deputy Sanitary Commissioners.		Superintendents of Vaccination.		Analyst.		Inspectors.		Assistant Superintendents of Vaccination.		Clerks.		Vaccinators.		Servants.		Contingencies.	Total.	
		No.	Rs.	No.	Rs.	No.	Rs.	No.	Rs.	No.	Rs.	No.	Rs.	No.	Rs.	No.	Rs.	No	Rs.	Rs.	No.	Rs.
Provincial.	The Presidency ..	1	2,000	..	..	..	..	1	200	..	..	..	..	11	665	..	..	9	79	603	22	3,547
	1 North Deccan..	..	..	1	1,090	..	..	..	..	7	605	..	..	3	115	..	..	11	96	72	22	1,978
	2 South do. ..	..	..	1	890	..	..	..	..	5	455	..	..	3	115	..	..	9	80	77	18	1,617
	3 Konkan ..	..	..	1	1,090	..	..	..	..	4	380	..	..	3	116	..	..	8	74	62	16	1,722
	4 East Guzerát..	..	..	1	840	..	..	..	..	5	455	..	..	3	115	..	..	9	80	63	18	1,553
	5 West do. ..	..	..	..	..	1	990	..	..	..	..	2	175	2	82½	2	21	8	66½	48	15	1,383
	6 Sind	..	.	1	890	..	..	..	..	6	530	..	..	3	115	..	..	10	88	65	20	1,688
	7 Bombay City..	..	...	..	..	1	380	..	..	..	..	..	..	..	..	..	..	..	.	18	1	398
	Total ..	1	2,000	5	4,800	2	1,370	1	200	27	2,425	2	175	28	1,323½	2	21	64	563½	1,008	132	13,886
Local Funds.	1 North Deccan..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	67	1,084	67	469	187	134	1,740
	2 South do. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47	771	48	336	135	95	1,242
	3 Konkan ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43	715	42	294	114	85	1,123
	4 East Guzerát ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	34	574	34	238	87	68	899
	6 Sind	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49	824	49	343	360	98	1,527
	Total ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	240	3,968	240	1,680	883	480	6,531
Municipal.	1 North Deccan..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	153	8	53	..	17	206
	2 South do. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	87	5	28	..	11	115
	3 Konkan ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	32	2	15	..	4	47
	4 East Guzerát..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	113	7	45	..	14	163
	6 Sind	...	..	..	30	1	125	..	..	..	..	..	..	..	..	6	134	9	80	90	16	459
	7 Bombay City..	..	..	..	..	..	..	..	..	..	..	1	130	2	70	9	225	13	102	218	25	745
	Total ..	..	..	..	30	1	125	..	..	..	..	1	130	2	70	39	749	44	323	308	87	1,735
Cantonment.	1 North Deccan..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	16	..	..	..	1	16
	5 West Guzerát..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	7	..	3½	..	..	10½
	Total ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	23	..	3½	..	1	26½
Native States.	1 North Deccan..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	1	19	1	6	..	2	25
	2 South do. ..	..	..	..	..	..	..	..	..	..	..	1	75	..	..	30	460	31	174	..	62	709
	3 Konkan ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	60	6	36	..	9	96
	4 East Guzerát ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	308	16	81⅜	..	35	389⅜
	5 West do. ..	..	..	..	..	..	50	..	..	..	..	..	..	..	..	41	910	41	277	60	82	1,297
	6 Sind.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	55	2	14	..	4	69
	Total ..	..	..	..	..	..	50	..	..	..	..	1	75	..	..	96	1,812	97	588⅜	60	194	2,585⅜
	Grand Total ..	1	2,000	5	4,830	3	1,545	1	200	27	2,425	4	380	30	1,393½	378	6,573	445	3,158⅜	2,259	894	24,762

At Aden there is a Vaccinator, paid by the Municipality, and entirely under the control of the Civil Surgeon. There are also Vaccinators in the Baroda and Cutch States paid from State Funds. There are others for the Military Stations of Mhow, Neemuch and Nusseerabad paid from Military Funds.

3. From this statement it will be seen, that 894 persons are in the several Districts on duties which necessarily develop degrees of thoughtfulness, and habits of observation. The Deputy Sanitary Commissioners are, with one exception, Commissioned Officers of the Indian Medical Service, and without exception they are thoroughly competent, and qualified to conduct the duties of officers of health. But their working areas are far too large for satisfactory supervision, as will be seen by the following table :—

Deputy Sanitary Commissioners.

		* Area in square miles.	* Enumerated Population by Census of 1872.
1. North Deccan District	... ...	20,230·60	3,858,874
2. South do.	do.	33,973·91	4,107,187
3. Konkan	do.	13,576·64	3,259,776
4. East Guzerát	do.	10,082·75	3,810,522
5. Sind	do.	46,598·75	2,192,415
		124,462·15	16,228,774

4. It will be seen that the area to be traversed exceeds the united areas of England, Scotland, and Ireland, and it is parcelled out into 5 Districts, the facilities for rapid locomotion being extremely limited.

* Exclusive of Native States.

5. The Superintendent of Vaccination in Western Guzerát is also a commissioned officer. He works through an area of 26,350 square miles, and the enumerated population in 1872 was returned at 2,815,215. The other Superintendent is for the City of Bombay. He is a Hindoo, and one of the most repectable, and respected of his community. His area is only 22 square miles with 644,405 inhabitants, but there is a Compulsory Vaccination Act, and with so many powerful and conflicting interests of caste and race, it requires no small amount of tact to work it.

Superintendents of Vaccination.

6. As a class the Inspectors are perhaps as good as can be expected for the pay given, but it would be misleading to speak of them as thoroughly efficient. In positions of such trust, and such temptation, we want a higher standard, and a more advanced intelligence, for though the problems are of the simplest, they require a certain amount of special training to cope with them, and a fertility of resource to make the most of the materials available. Now that the elementary principles of Hygiene are a part of the educational course, time only is needed to bring forward men better informed, and in all respects more fitted for their posts than those who now fill them. It is not implied that the present incumbents are specially disqualified, but when they entered the service sanitation was hardly recognised, and in such education as they received it was unknown. It is their misfortune, not their fault, that they had not the opportunities enjoyed by the students of the present day.

Inspectors.

7. The Vaccinators have purely executive functions, and here again we want a better class of men on better pay. The mere manual dexterity is soon acquired, and there can soon be run up a goodly score of operations, so in this sense it is not skilled labour. But there is a higher stand point. If vaccination be too rapidly extended, or carelessly practised as to the fitness of the children, the quality of the lymph is apt to degenerate, and in dealing with a people so prejudiced, and so prone to suspicion, both care and judgment are needed, that the benefit conferred shall be real and lasting, with an appreciative value; and when it is remembered, that skin affections are here more than common, and that some of them are communicable by humanised vaccine lymph, it will be seen how great are the personal responsibilities of our vaccinators.

Vaccinators.

8. The Peons are subordinate servants who collect returns, gather local information, find out the unprotected children in the villages visited, and make themselves generally useful.

Peons.

Here then is the working staff. Past records attest how much India owes to *curative* medicine, that science which confronts actual disease and combats it, but whatever the debt it will yet owe as much to *preventive* medicine, that sister science ever on the watch for conditions which would cause decease were they overlooked or neglected. Slowly perhaps but none the less surely, there is now being developed a department of preventive or State medicine, the future of which is full of promise.

The leading objects in view are chiefly connected with—

Duties.

1.—Vaccination.
2.—Birth and Death Registration.
3.—Sanitation generally.

9. As regards vaccination the detailed work for the year is given in Section III. For the 3 years the Deputy Sanitary Commissioners collectively made 1,037 encampments, marched for 2,036 days, and travelled 32,865 miles. The villages visited numbered 3,927, and 145,479 vaccinated children were examined with a view to test the work of the vaccinators. The number *successfully* vaccinated was 2,037,406.

10. As regards the Birth and Death Registers not a town or village is visited, but they are called for and examined, and their use and value pointed out. Their value is in direct proportion to the interest taken in them by the Collector and his Assistants, so

Birth and Death Registers.

where they are defective it is presumptive evidence that in that district there is no one who cares much about them. The improvement in them has been slight, but in dealing with such numbers it is something to get a fairly accurate record of bare increase and decrease, and it is something more when there is an attempted classification of the causes of death.

Sanitation.

11. As regards sanitation the chief points are embodied in the following "Suggestions" which have been framed for general guidance in the more simple matters of village conservancy. They are based upon somewhat similar rules which were drawn up for the Punjab, and as those have been in force for some time, no difficulty need be apprehended as to these. They have already been published by Government, and when they are translated into the vernaculars of the several districts, and distributed amongst subordinate officials, and others, they may be of practical use—more especially to minor Municipalities, and villages where skilled labour is seldom available :—

SUGGESTIONS FOR GENERAL GUIDANCE IN MATTERS RELATING TO VILLAGE CONSERVANCY, AND THE PUBLIC HEALTH.

Village sites and direction of streets.

1. When a site has been carefully selected, and a new village is about to be laid out, its main streets should all run with the prevailing wind, and both main and cross streets should be as wide as possible. No lane even should be less than 10 feet broad.

Width of streets.

2. Each street should have its road-way proper, and on either side a foot-path, 10 feet broad, with channels for rain-fall. The road-way should always be wide enough to let two carts pass each other without touching the foot-paths.

No encroachments on public streets.

3. The breadth from the house plinth on one side to that on the other will be the breadth of the public street, and on this space no encroachments should be permitted. It is the common property of the village, and from end to end one unbroken line should be maintained.

The "unbroken line" is the line of frontage. There will be intervals between houses, but all should be brought up to a given line.

Tree-planting along streets and roads.

4. Tree-planting at measured intervals should be encouraged along the outer line of the foot-paths and on public reserved sites, and here the advice of the Forest Department should be obtained. In planting along lines of road, or in very wide streets or squares, an excellent plan is that sometimes adopted. Instead of having a single row on either side, a double row is planted down the centre, and the meeting branches form a shaded avenue for pedestrians. Breaks at convenient lengths serve for crossing from one side to the other.

Public reserved sites.

5. In addition to the public streets public sites will be required for markets, for wells and tanks, for schools and places of worship, for recreation, for cattle to be picketted, for cart-stands, and for all such objects as are common to the community generally.

Covered foot-paths in front of houses.

6. Should any house-holder wish to project a covering over the foot-path in front of his house it should be 7 feet clear above the foot-path.

Avoid the errors so prominent in the older villages.

7. It is very seldom that a new village is laid out, but, when the occasion does happen it will be as well to avoid that want of alignment, and those errors of construction, which, in the older villages, are such impediments to street and other improvements (see sketch A).

Houses.

8. As regards houses, the simplest and commonest form is that which has but one room, but whatever the description (whether large or small) and whatever the materials, there are certain general principles which hold good in all cases.

Plinths.

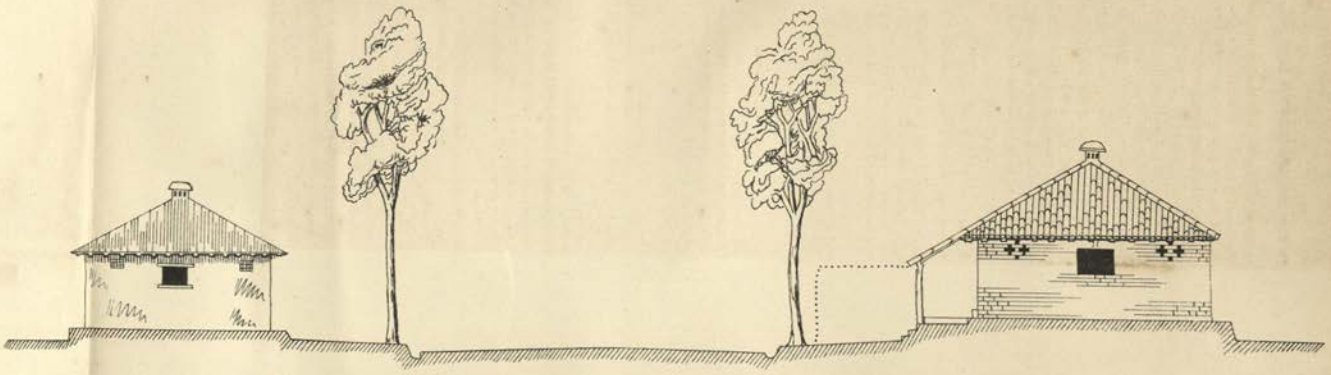
9. There should always be a plinth, and it should be at least 1 foot above the ground level. It may be of any breadth, and covered in or enclosed.

Doors and windows.

10. For a detached single-room house, standing in its own enclosure, there should be a front and a back door, and a window in each side-wall, as well for convenience as to ensure the passage of air not only *into* the house but *through* it.

B.453.

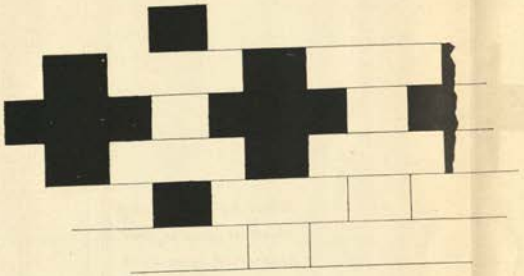
A



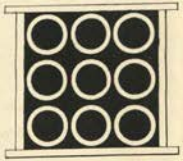
The sketch shows a section of a village street with its road-way, foot-paths, side channels, and trees. On the left is one of the poorer description of houses, and on the right one of the better class. The dotted line shows a projected covering over the foot-path in front.

Litho: Govt Photozincographic Office Poona 1879.

B

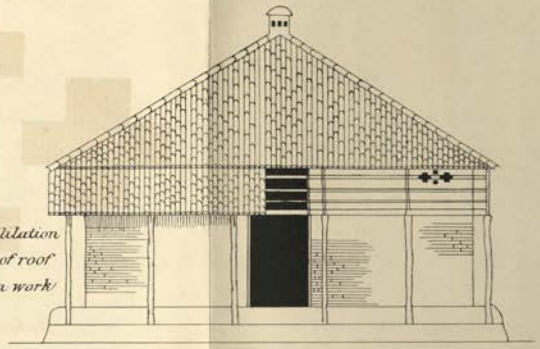


Ventilation in walls by brick open work.



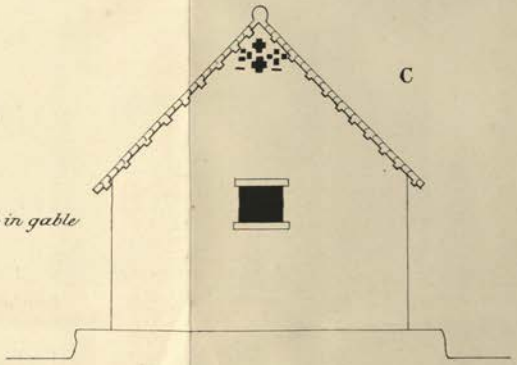
Ventilation in Mud Walls by common earthen cylinders.

B



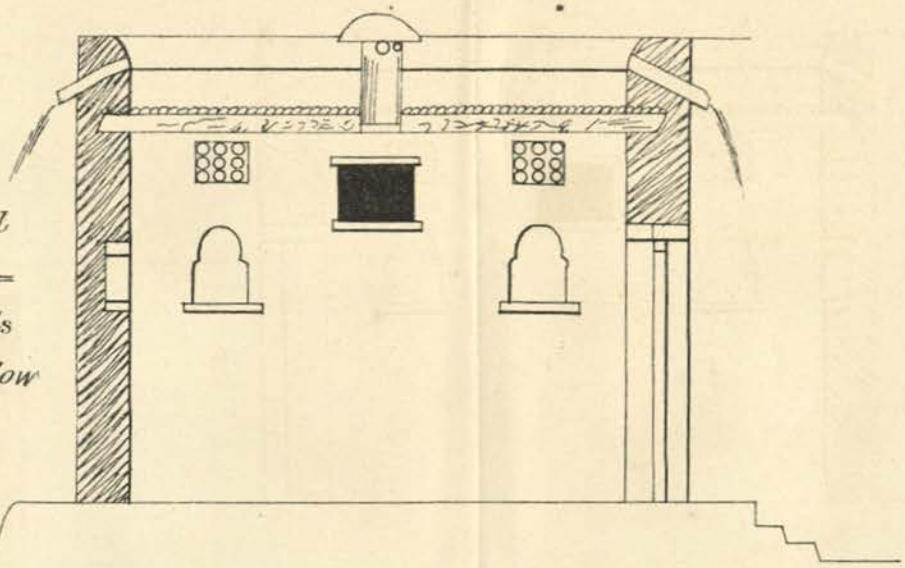
House with ventilation shaft at apex of roof and brick open work in wall.

C

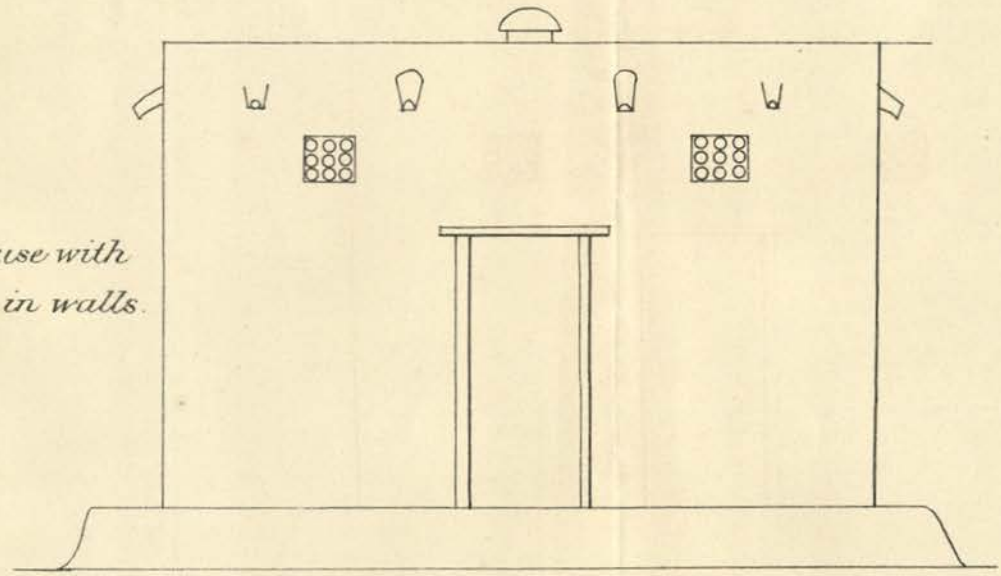


Brick open work in gable end of House.

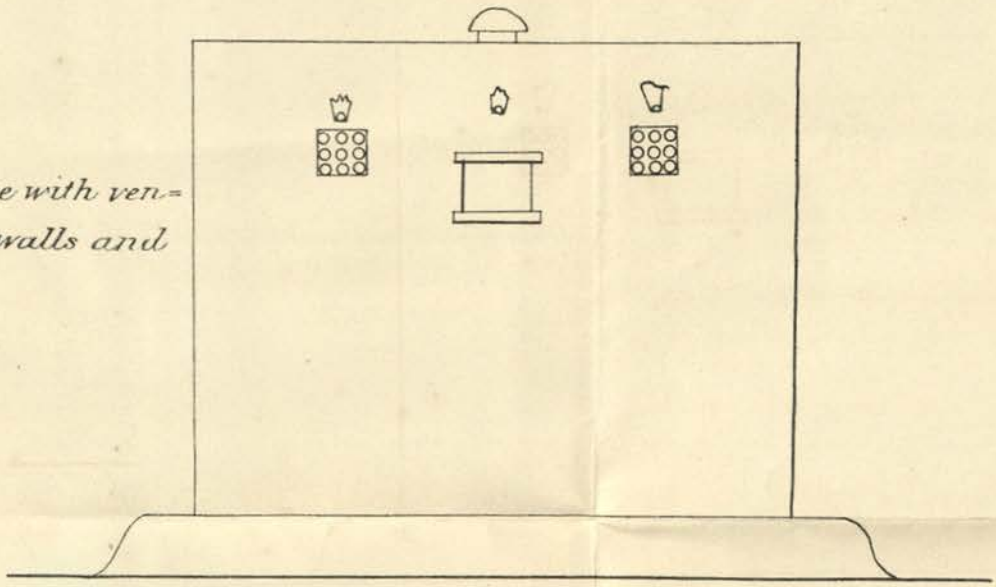
Litho. Govt. Photozincographic Office, Poona. 1879.



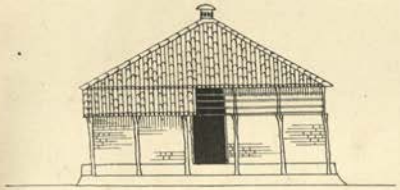
Section of Flat roofed House, showing ventilation in roof & walls independent of window



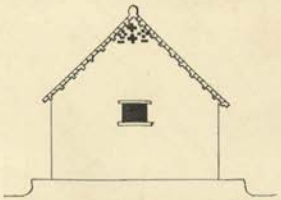
Front of House with ventilation in walls.



Side of House with ventilation in walls and window.



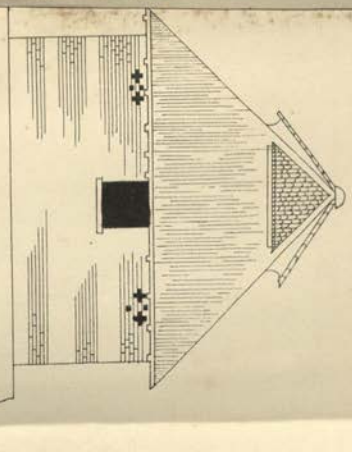
Ventilation of common village House 16x16 & 7 to Eares, Roof thatched or tiled Brick open-work in corners under Eaves, House Plinth 2 feet, Veranda 1 foot.



Gable end of House, with Ridge roof window 2x2 & Brick open-work in = Gable.

House showing alternative Ridge ventilation

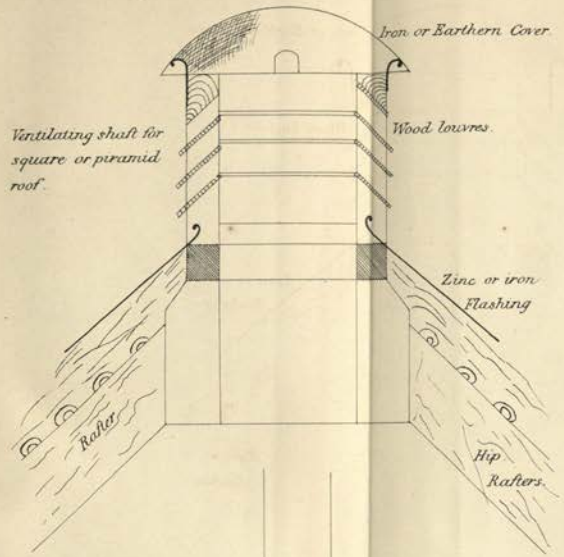
Ridge roof ventilated window in side wall, and brick open-work.

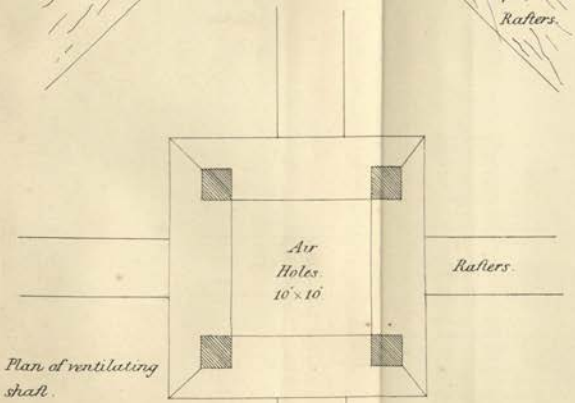


E

Litho. Govt Photozincographic Office Poona 1879

F

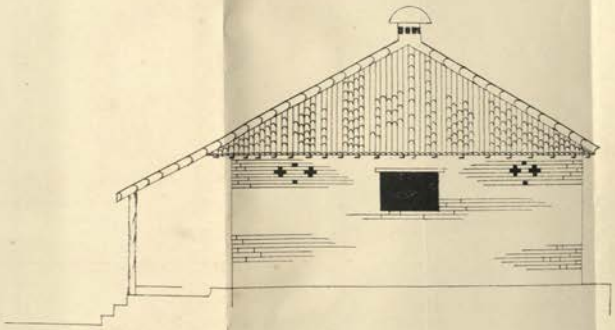




Plan of ventilating shaft.

Common Village House with window and wall ventilation and ventilating shaft at apex of roof.

Better class house with window and brick open-work in side wall and ventilating shaft at apex of roof.



Litho. Govt. Photozincograph. Office Poona 1879.

The majority of houses in our smaller towns and villages have nearly all the faults that houses can have. The materials are bad—the walls are dwarfed—the verandah, if there is one, is far too low—the *one* door is about 5 feet high and often less. There is no window, and no apology for ventilation.

Glazed windows are the exception. More commonly they are mere openings with bars or shutters, but more commonly still there are none.

The remarks as to the disposal of all liquid waste are of course for those places where there is no attempt at drainage.

Height of walls, doors, and windows.

11. As houses and rooms will be much what the owners means can make them, it would be useless to exact that they be gauged by a fixed standard. In a general way it can be said what ought not to be allowed, but in the matter of measurements it is perhaps better to give a minimum, and let it be exceeded according to individual means. For rooms of the better class the walls should be 9 feet high, never less than 7. In the former case the doors should be 7 feet by $3\frac{1}{2}$, and in the latter 6 feet by 3. The walls of common wattle and daub huts should be 6 feet high, and the doors 5 feet by 3. No door should be under 5 feet.

At least one window should open to external air.

12. For every inhabited room there should be at least one window opening to the external air, and in size this window should never be less than one sixteenth of the floor space. A convenient size is 18 inches square, and there should be one or more of these according to the size of the room.

Permanent ventilation for rooms.

13. In some part of every wall there should be openings of some sort, either common earthen cylinders, or brick open work (*see* sketch B). It matters little how these openings are made so long as they exist, and there is no wall so slight, or so rough, in which they may not be made. They should be independent of doors and windows and high up, more especially so in gable ends (*see* sketch C).

Ventilation of roofs, flat.

14. For the roof there must be special ventilation to provide for the escape of foul air and smoke. With a flat roof, as in Sind, there may perhaps be a door to give access to it, but whether or not there can easily be made a small ventilating shaft about 1 foot square, and barred at the top. If this be impracticable, some of the common earthen cylinders should be built into the wall as high up as possible (*see* sketch D).

Ridge.

15. Ridge-roofs should have in them, in proportion to their size, one or more overlapping flap openings at least 3 feet square, with a rise of 6 inches (*see* sketch E). They can be made alike in tiled and thatched roofs, and where there is only one, it should be on the side from which the wind seldom blows.

Square or pyramid.

16. In a square or pyramid roof, where the rafters meet at a common centre, there may still be the flap-opening, or a square ventilating shaft 1 foot square at the apex. The construction of this shaft is shown in the sketch (F), and it is so simple as to be within the capacity of any ordinary village carpenter.

Verandah.

17. An enclosed verandah should have a door, or a window, or brick open work, and no verandah should be less than 5 feet high.

Inter-spaces.

18. When houses are detached, the inter-spaces should be at least 10 feet. It is assumed that in villages space is not the object it is in towns.

Line of shop-fronts.

19. No shop-front should project beyond the line of house-plinth.

Bathing places, waste-water from.

20. Bathing places should, if possible, be detached from ordinary village houses. They should always be raised above the ground level, and the waste-water should be led away from them by a *straight* cut. If this cut be puddled with clay, or lined with tiles, and mud-plastered, it will form a fairly serviceable surface drain. In most cases the waste-water may be utilized in a small bit of garden, or for a few plants, or for a single tree.

Cooking places, waste-water from

21. In the same way the waste-water from cooking places may also be utilized, and the people should remember that, for the greater part of the year, they may with their waste-water, and without much trouble, or expense, grow a welcome addition to their ordinary food-supply. Whenever and wherever waste-water is poured out over ground the earth should always be turned up or raked over it, and, if thus treated, there is neither risk nor nuisance. If the earth be turned up over it every time it is poured out the same piece of ground may be used over and over again for an indefinite period.

What should be done with waste-water.

House refuse.

22. All refuse of every sort should be removed from the house and its premises at least once in every 24 hours. It may be taken to some place or receptacle near at hand where the collective refuse of many houses is deposited for subsequent removal to some other place duly assigned outside the village and to leeward, or, failing this, it may at once be taken outside. The object is to remove it from the house and its premises at least once every day, and if this be done, the time and manner of removal may be left to suit the convenience of the householder.

What should be done with it.

Village refuse.

23. For every village there must be certain assigned places, at which all refuse shall be deposited. These places must be outside the village, and to leeward, as regards the prevailing wind, and on no account must they be near any source of water-supply. It might perhaps be arranged that here each house-owner may have his own small plot where his own refuse-heap might remain until it was wanted for his fields. Mixed with earth it would be a valuable manure, and the cultivator would very soon learn to appreciate its value. If the refuse increases in bulk too rapidly it may always be reduced by burning.

What should be done with it.

Valuable as manure.

24. Villagers should remember that the refuse and the filth, which now lie uncollected, would have a money value, if collected and if carried to the village lands, and there utilized, would restore to them that richness which they have lost by constant cropping. There is no description of ordinary refuse, or filth, which may not be turned to account on land, and the prudent ryots will be those who collect it from the village generally. This they can do by offering their fields as places of deposit, and by letting their carts stand at certain hours in certain places, so that all may bring to them such daily refuse as they cannot otherwise dispose of.

House privies.

25. As regards house privies, there are two rules which should everywhere be rigidly enforced. None should be allowed unless there are those in or near the village to attend to them, and where they are allowed, there should always be some sort of receptacle under the seat.

Arthur Crawford pattern.

26. An excellent form of privy is that shown in the sketch G. It was introduced by Mr. Arthur Crawford when Collector of Kolába, and it is very good one, provided there are sweepers in attendance, and provided, also, that the deposit be removed at least once in every 24 hours. There is neither brick nor mortar to become excrement, sodden and offensive. Being constructed of wooden uprights, and bamboo or other battens, the wind blows freely through it, and there can be no fouling of the ground under the seat, for a metal shoot delivers the deposit and the ablution water into a metal bucket. If it be more convenient a sort of eaves gutter might run along the back of all the seats, and deliver into a receptacle at one end. This would do away with separate buckets, but then the one receptacle would be heavier. If it be urged that metal shoots and metal buckets are not within the reach of ordinary villagers, it may be said, in reply, that unless a man can afford to build a properly constructed privy and to undertake that it shall be attended to, he should not be allowed to have one.

Disadvantages.

Privacy secured.

27. But with all its advantages this privy is complained of. The people say, and not unreasonably, that there is a want of privacy. A man arrives and has to pass three or four compartments, before he comes to a vacant one, and in those occupied the men are fully exposed. Although this is a minor matter, it is one that demands attention, and fortunately the want can be supplied. A fixed screen would secure the desired privacy, and in addition there would be the general trellis work screen running along the entire front. The deposit in the buckets should be covered with a light coating of earth just to kill the smell until such time as the buckets are themselves emptied.

Excreta should be covered at once.

28. Another simple and serviceable form of privy is that shown in the sketch H. A somewhat similar one was constructed by Colonel Goodfellow, R.E., V.C., for the High School at Kárwár, and is highly spoken of. It can be made of rough wood, earth, stone foot rests, and iron pans— so it is within the reach of all—and in place of stone or brick screen walls, common trellis work will serve the purpose. The walls and partitions can also be made of bamboo battens, and screens can be placed in front of the several compartments. The iron pans may be half filled with earth. One advantage of this privy is that if it gets foul the whole of the earth in which the pans slide can be removed, and the ramp can then be reformed with fresh earth.

29. Where there are privies, and sweepers to attend to them, the deposit should be removed at least once a day to an assigned place and there it may be treated in different ways. It may be buried in a trench about 3 feet deep, and covered with earth, but if this be done the probability is that it will remain in the trench, and be lost to the land. A preferable plan is to make a bed of earth, and ashes on to which the deposit may be emptied, and covered in its turn with more earth and ashes. The several layers could then be thoroughly mixed together, as is done in some places, and the result would be an innocuous inoffensive mass of the richest manure. In Gujarát, where there are sweepers, this plan offers no difficulties beyond those of supervision. In the Deccan and the Konkan, although the Mhárs object to touch ordure, they will remove refuse of which ordure forms a larger or smaller portion, so here again the difficulties are not insuperable. In Sind such is the dryness of the atmosphere, and so great is the desiccating power of the sun, that there ought to be no difficulty. The sites should always be enclosed so as to exclude naimals.

Should be removed at least once every day to a common manure-yard.

Should there be mixed with earth or sifted ashes, or both.

30. When from any cause trenches cannot be provided, the villagers must then, having due regard to decency, resort to the most convenient place outside the village, to leeward, and away from any source of water-supply.

Where no latrines of any sort can be provided.

31. Plots of untrenched ground might be enclosed for general resort, and the village Mhárs or sweepers, where there are sweepers, might cover the excreta with earth, and sweep everything up into one common heap. Urine, too, might also be utilised. Instead of being wasted here, there, and everywhere, let it be passed into any sort of earthen vessels half full of earth or ashes, and after micturition, let a handfull of earth or ashes be thrown in. When the vessel is full let it be taken to the common manure-yard, and there emptied. In this way every household might make a valuable addition to its manure-heap, and those without fields could sell their compost to those who have them. In China and Japan no refuse is wasted. The sweepings and excreta are all collected and used on the village lands, and the cost of the collection is more than repaired by richer and heavier crops.

Enclosed plots may be used.

Urine should also be mixed with earth and stored for use on fields.

32. Every possible means must be taken to prevent the fouling of any place within the village, and no places outside should be used other than those specially assigned.

Fouling of streets, lanes, &c., to be prevented by every possible means.

33. For the sick and infirm, and for children too young to be trusted out of sight, there should be provided any sort of common earthen vessel, half full of earth or ashes, with which the deposit should at once be covered. At least once every day the vessel should be emptied at the common manure-yard, and refilled with earth or ashes.

Arrangements for sick and infirm, and for infants.

34. When the water-supply of a village is obtained from running water it should be drawn at a point up stream and above the village. All fords and ferries, all bathing and clothes-washing, all cattle watering and washing, and all trade and other operations for which water is wanted, should be at a point down stream and below that at which the supply is drawn for drinking and ordinary house use. The purity of running water must be strictly preserved, for it runs to other villages, and is their source of supply.

Water-supply.

35. When a tank is about to be made, there should be made in or alongside of it one filtering well for the higher castes, and one for the lower As long as caste prejudices obtain, so long will it be necessary to have more than one of these wells. Their construction is very generally understood, and one of the best is that in the Govâli Tank at Bombay. There are few existing tanks in which during the dry season these wells might not be made, but where it is impracticable, or impossible, the supply for drinking and ordinary house use should be drawn at one particular spot, and every operation which tends to foul the water should be conducted as far from this spot as possible. No cattle should be watered or washed in a tank, if it can possibly be avoided.

Tanks.

36. For every tank there should be a boat, or raft or some sort, no matter how rude, as well to guard against accidents as to remove floating impurities and dead and decaying vegetation. There should also be 2 or 3 bamboo or other floats, which could be thrown to persons falling in accidentally or otherwise.

Boat or raft necessary.

37. As regards wells, neither trouble nor expense should be spared to preserve them from all possible sources of impurity, and to this end nothing should be permitted at or near them which might contaminate them. The parapet wall should be high enough to exclude surface impurities and to guard against accidents. The supply should be raised by iron-chains and buckets. No soakage

Wells.

of any sort for trade or other purposes should be allowed, and bathing and clothes-washing should be so conducted that the water used shall not re-enter the well. Floating impurities and dead and decaying vegetation should be taken out as soon as possible, and sedimentary deposits should be removed periodically.

Cattle troughs.

38. When cattle are watered from wells they should not be watered *at* them. The trough should be at least 50 feet distant, and, if possible, at a lower level. The rudest aqueduct will suffice. The object is to avoid that mixture of mud, urine, droppings, and dirty water which may be seen round most wells.

Pavements and catch-water channel to carry waste to a grove of trees.

39. For *every* well there should be a pavement sloping to a catch-water channel. This channel should be straight where it leaves the well, and if extended some 40 or 50 feet there might soon be formed a grove of trees. The distance should always be such that falling leaves could not enter the well, and roots would not dislodge the masonry. Where space is no object, and with a view to preserve the purity of the water, no operation whatever should be permitted within 100 feet of the parapet wall, and, if possible, wells should be covered in.

Precautions at wells.

40 To guard against accidents, there should be laid across every open well a piece of timber, a cocoanut tree or other trunk, and from this a knotted rope should drop into the water and it should be so fastened round the trunk that it may traverse it freely from one side of the well to the other. For large wells there should be in addition one or two floats.

Wells for lower castes.

41. In making wells from public monies the wants of the lower castes should not be overlooked.

Trees and hedges in and near villages.

42. Trees in and near villages should have their lower branches cut to a height of from 6 to 12 feet, and hedges should be cut and trimmed annually and so trimmed that the wind may blow through them at the ground level. They should never be made receptacles for refuse. No rank grass, weeds, or undergrowth, should be allowed to grow near houses.

Slaughtering places.

43. No cattle or sheep should be slaughtered for food except at an assigned place outside the village, and to leeward, and all refuse from the slaughtering should be carefully buried. Neither hides nor skins should be prepared except at a place similarly assigned.

Cattle sheds.

44. No cattle should be kept under inhabited rooms, and the practice of keeping them in any part of the house should be discouraged. They can be kept on the ground attached to the house, and in this case there should be some sort of open shed under which the animals should be tied up. The floor of the shed should be above the ground level, and should have just sufficient slope to carry off water. In rear of the animals there should be a channel to carry off the urine, and if this urine be mixed with earth it will form a valuable manure. The cow-dung will probably be used as fuel, but the dirty litter should be swept out daily, and the floor should be kept even and clean.

Urine of the cattle should be mixed with earth, and used as manure.

Brick-making.

45. Neither brick-making nor burning should be allowed except at a place specially assigned, nor should clay for brick-making be excavated within the village. Should there be any old excavations they should be filled in with clean earth.

Cremation.

46. Cremation should be conducted to leeward of the village, and away from all sources of water-supply. It should be carried out very thoroughly.

Burial.

47. Burial-grounds should also be to leeward, and away from any source of water-supply, and the graves should be at least 4 feet deep.

Unusual amount of sickness should be reported.

48. When in any village there is an unusual amount of sickness a report of it should at once be sent to the Mámlatdár who should take such action as may be necessary, and the Patel or headman of every village should be furnished with such simple medicines as are entrusted to the police and others to be administered. At such times extra care should be taken with regard to food and water, and personal and general cleanliness, and clothing.

Cholera.

49. Should cholera prevail application for relief should be made upon the first appearance of diarrhœa, no matter how slight. It can not be too often and too carefully impressed upon the people, that *during cholera the danger is not so much from direct contagion as in the emanations from decomposing cholera excreta,* so before decomposition can set in all discharges from persons attacked by cholera should at once be covered with earth, carried to a specially assigned place, and there carefully buried. If each fresh

Special danger to be avoided.

discharge be not removed as soon as passed it should always be covered with earth, and at once too. Bedding and clothes soiled by cholera discharges should be burnt.

Purification of places in which cholera has occurred.

50. Huts in which cholera has appeared should at once be emptied of their inmates and of everything removable. The roofs should be stripped off and the doors removed. The windows should be opened and kept open, and the floors should be dug up and plentifully sprinkled with lime. If the walls are simply mud-plastered the coating should be removed and renewed. Every part of the house and its furniture, such as it is, should be freely exposed to sunlight and air. In houses of the better class these measures would be inadmissible, except as regards the removal of everything that can be removed, and its free exposure. The doors and windows should be opened and kept open, and the particular room should be thoroughly cleaned, and its walls washed with hot-lime and water.

Small-pox.—Protection by Vaccination.

51. It is the duty of parents to secure their children against small-pox by having them vaccinated, and on no account should this duty be neglected. Every year there are thousands of deaths from small-pox, and in almost every instance it carries off those who have not been vaccinated. When the Government vaccinator comes to a village, all children of three months old and upwards should be taken to him to be examined and vaccinated, and his instructions should be implicitly followed.

Bodies of persons dying from cholera, small-pox, &c.

52. Bodies of persons dying of epidemics, as of cholera, small-pox, &c., should be disposed of as soon as the signs of death are unmistakable.

Application of rules.

53. As the opportunity offers these rules, or suggestions, may be applied to existing conditions, for instance, when a house is to be rebuilt let it be rebuilt as here recommended. Never lose the opportunity of improving a street, or public reserved site, or building. Let the Mhár quarter of the village be as well cared for as any other, for disease originating there through neglect may bring death to doors where cleaniness is observed.

Preventible causes of disease.

54. Overcrowding, bad ventilation, neglected drainage, impure air and water, unripe fruit and vegetables, unwholesome and badly cooked food, neglect in removing refuse, and cholera excreta, low-lying and badly built houses, these are some of the chief causes of disease, and with ordinary precaution they are one and all of them preventible.

Supplementary rules. Advice from Government officers.

55. As the occasion calls for it these rules will be supplemented, and all concerned should understand that at all times advice may be had from the officers of the Public Works, Medical, and Sanitary Departments, as well as from Collectors and their Assistants.

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12. It need hardly be said, that these "suggestions" are not meant to meet the more complex questions which present themselves in the larger towns and cities. The masses live in hamlets and villages where all the surroundings are of the simplest, and, as a rule, they will do as they are told if they are also told how to do it: the difficulty is to get them out of the old grooves.

PRIVY ACCOMMODATION.

Privy accommodation.

13. Few Sanitary questions are here more perplexing, than those connected with public and private privy accommodation. There are no sewers, so happily there are no water closets, and happily, because if those are not properly constructed they are far worse than the worst privy. They were tried some years ago at the Elphinstone Circle in Bombay, and were such nuisances that they had to be given up. They were tried too at Gunesh Khind near Poona, and there they were so offensive, that the connections were cut and closed. In each instance the faults of construction were such, that failure was inevitable, and they were so glaring, that the veriest tyro might have detected them: but seemingly there was no one to take action for the failure was accepted, and it has engendered the illogical conclusion, that

the system of removal by water carriage is unsuited for India. Removal by human agency is the more common method, and although it is degrading and disgusting, it is a necessity, and as such we must accept it, and make the best of it; after all the mere removal is rather a matter of convenience, and decency, and the more serious question is that of ultimate disposal.

Ordinary Native Privy.

14. The form of privy best suited to native habits has yet to be adopted, and unfortunately the one in vogue is nearly all that it should not be. Whether it be built of brick, and lime masonry, or of less enduring materials, it is invariably foul, and inexpressibly filthy. The bricks are of the worst description, and the foot-rests, catch-pit, and bed, are indifferently coated with plaster of the poorest, so very soon everything is excrement sodden, and emits the ammoniacal smell, that results from the action of urine upon lime. A trap door about one foot square frequently opens on to the public street, and through it the sweeper removes such of the more solid dejecta as are within reach: the fluid portion is partly absorbed, and partly escapes as a fœtid ooze offending both sight and smell. The walls for some feet of their height are damp, and in places discoloured, and every evil is aggravated by irregular service. There are thousands and thousands of such privies, and though they may differ in this or that detail, they only range from bad to worse: nor can *they* be improved, except by piercing their walls to ventilate them and placing iron receiving vessels to prevent soakage.

Public Latrines.

15. Public latrines are comparatively modern creations, and many Municipalities must now wish theirs had been built with less haste, and more discretion. Those at Sholápur flank a main road somewhat obtrusively, but more obtrusive are the people who refuse them, and use the field immediately opposite. At Pandharpur there are seats by the hundred, but they were only finished to be abandoned for ill-made and worse kept trenches. At Poona they are standing proof, if proof was wanted, of the extent to which the best masonry will take up pollution, and retain it. In Bombay, even, with all its advantages of a well-organised Health Department, the great Sonapore latrine is Bombay's greatest nuisance to those in its vicinity, and elsewhere it is much the same, nor will matters mend until existing faults are fully recognised by Native builders. They have yet to learn, that neither in town, nor in country, is it necessary or advisible to have enclosing walls of solid masonry, that chunam should be discarded altogether, and that an impervious receiving vessels is indispensable.

Standard pattern Latrine.

16. Improved construction has been attempted by Government, and the outcome is the *standard pattern latrine* of the Public Works Department. It is as costly, and massive as cut stone can make it, and its very screen walls, also of cut stone, are as thick as though they were to withstand the fire of Artillery. Regular service, constant supervision, and a lavish expenditure of deodorants, ensure its cleanliness within certain areas—as Barracks, Hospitals, &c.,—but in less favoured places it is carelessly used, and soon becomes foul and offensive.

Jubbulpore pattern.

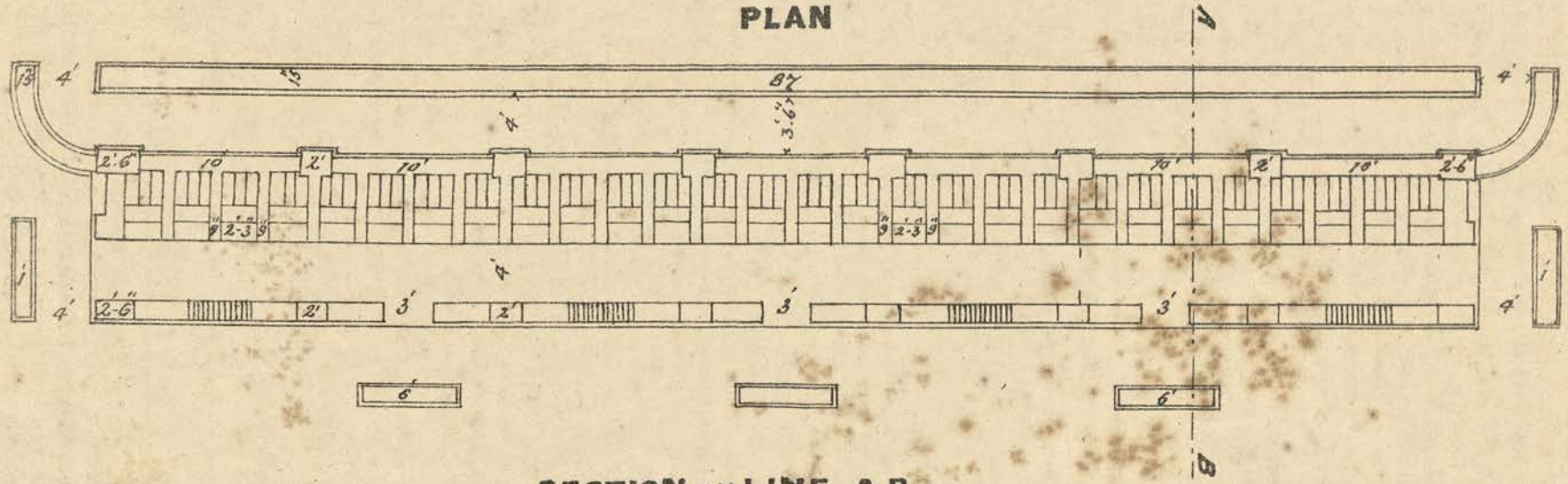
17. The *Jubbulpore pattern* has two receiving vessels, one for solid excreta, and the other for fluids—but clearly no system can commend itself for general adoption which requires that a careless and hurried public shall defœcate in one place and micturate in another. It answers in jails where the discipline is despotic; but there such scrupulous attention is paid to every detail, that the style of building is of little consequence. At the Kolhápur State Jail latrine the walls are enormously thick, and the foot-rests and beds are of cut stone, and yet all is so clean, and so free from smell, that no dairy could be cleaner.

Crawford pattern.

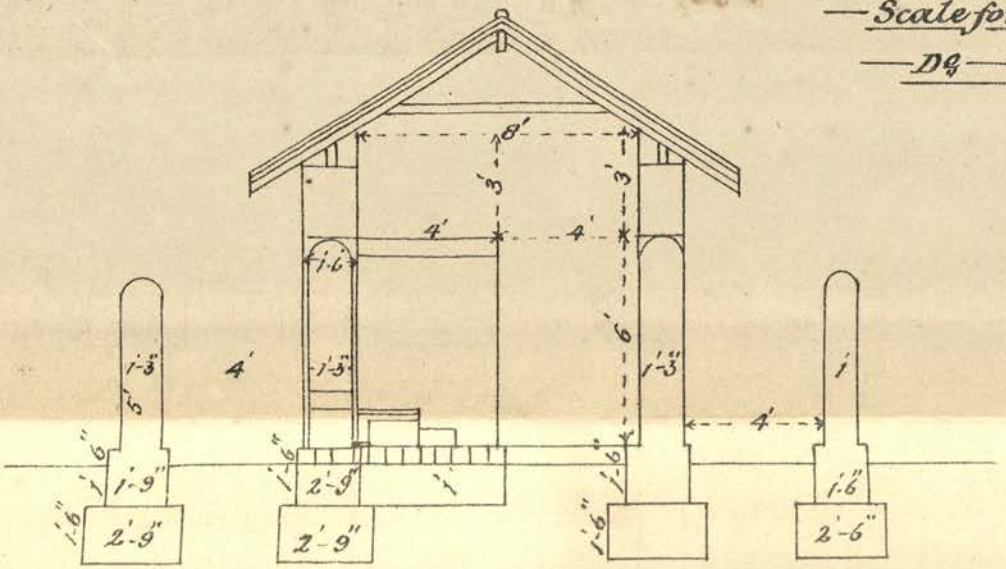
18. Another laterine is that designed by Mr. Arthur Crawford, and it is so far an improvement, that there is no masonry superstructure. It is enclosed on three sides with common bamboo battens, and a mat screen in front takes the place of a door, so the wind from any direction can blow through and through it. The foot-rests are rather high because the immediate receiving vessel is the expanded end of an open metal shoot, which slopes downwards and backwards to an ordinary zinc bucket outside

STANDARD PLAN OF A LATRINE FOR NATIVES.

PLAN



—SECTION ON LINE A.B.—

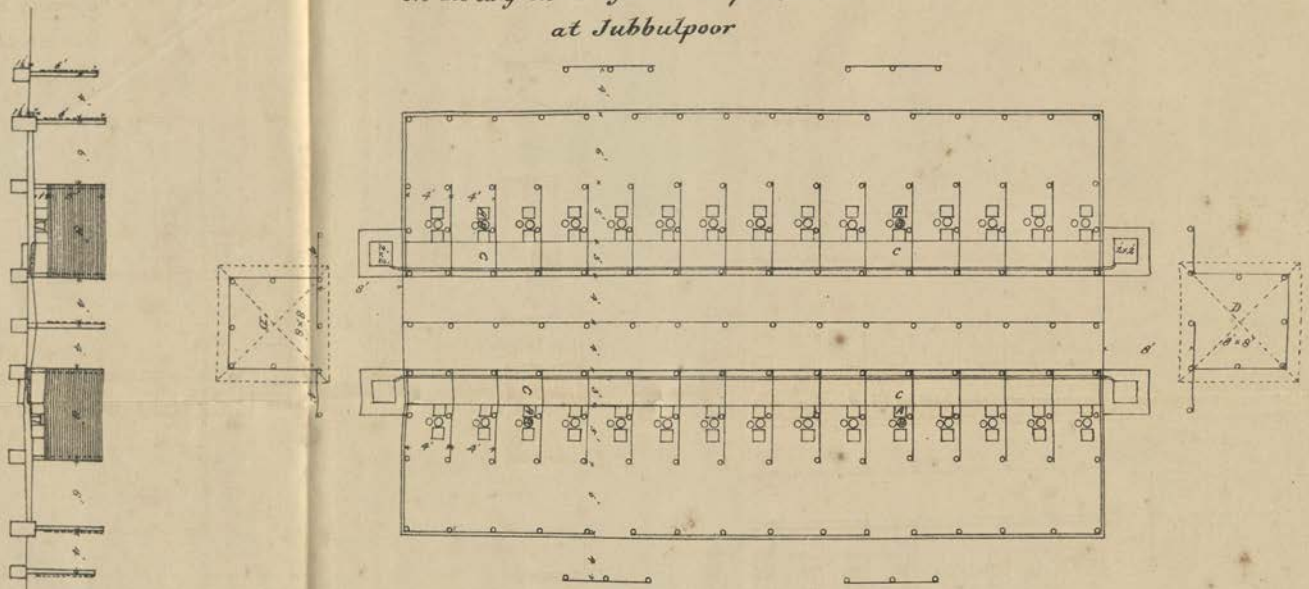


—Scale for Plan 10 feet to an Inch.—

—D^{q}— Section 5 —D^{o}— D^{o}—

Photozincographed, Govt. Office, Poona, 1880.

PLAN
OF
LATRINES FOR NATIVES
on the dry earth system as practised
at Jubbulpoor



REFERENCES.

A. Moveable foot stones 1 foot cube.

B. Earthen Koondahs in lieu of iron receptacles, two in each compartment, larger for solid & smaller Koondah for fluid sewage contents to be de-odorised by the sweeper with dry earth immediately after use.

C. Paved ablution flags the water from which is conveyed by channel to iron receptacles at each end of the latrines.

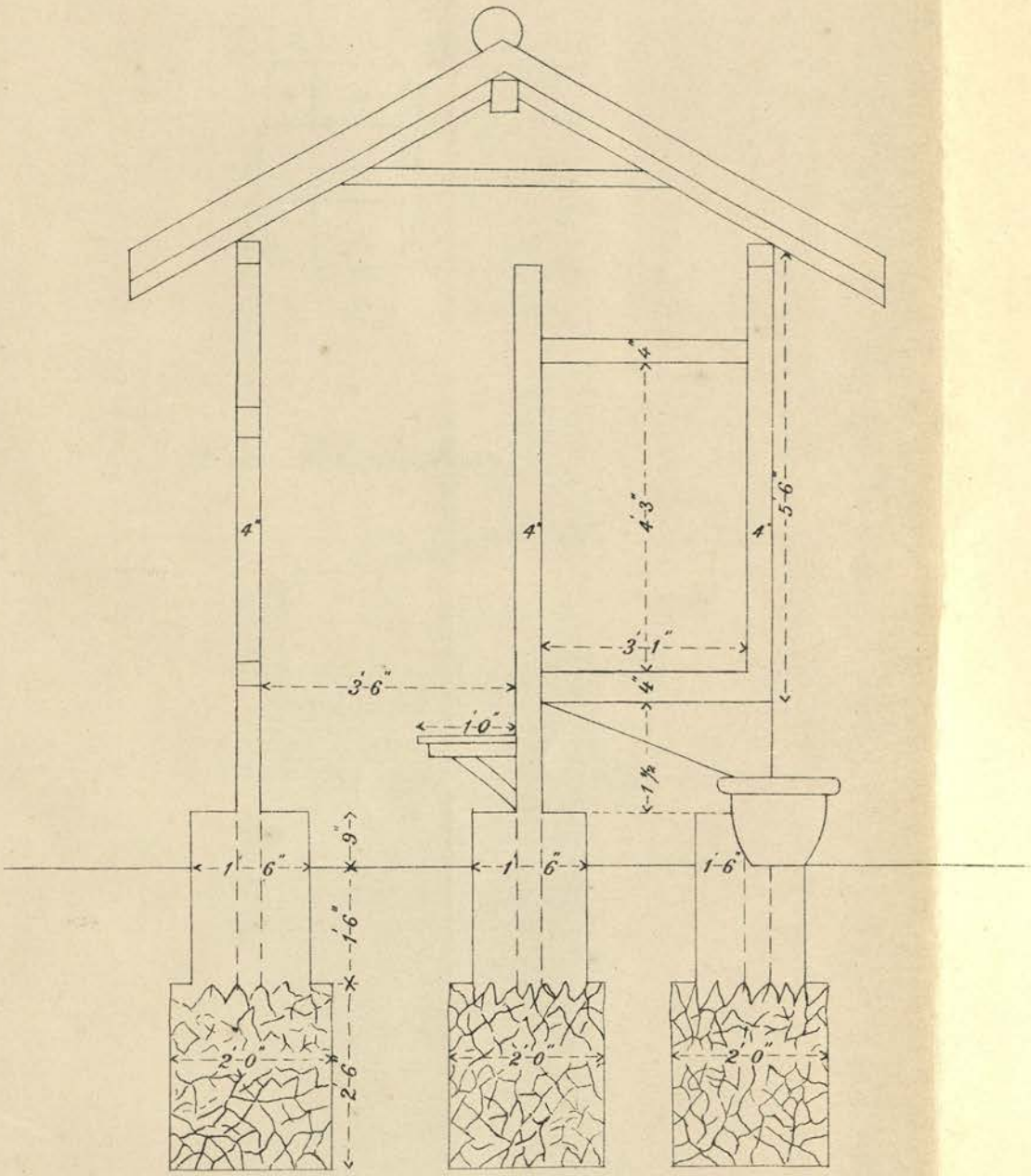
Flooring in remaining portion of latrine to be metalled.

Enclosures screen walls to be formed of split bamboo dammered; the lower portion being left open to a height of 1 foot above ground in all cases.

D. Dry earth shed 8 feet square at each end of latrine.

Scale 8 feet to an Inch.

G



Arthur Crawford pattern of village privy.

B. 453

Litho: Govt Photozincographic Office Poona 1879.

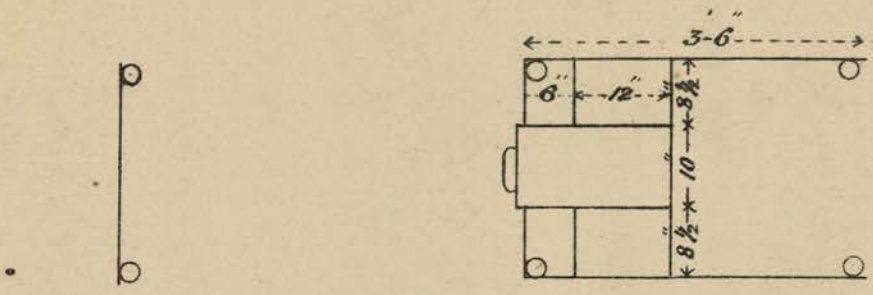
H

Modification of Latrine

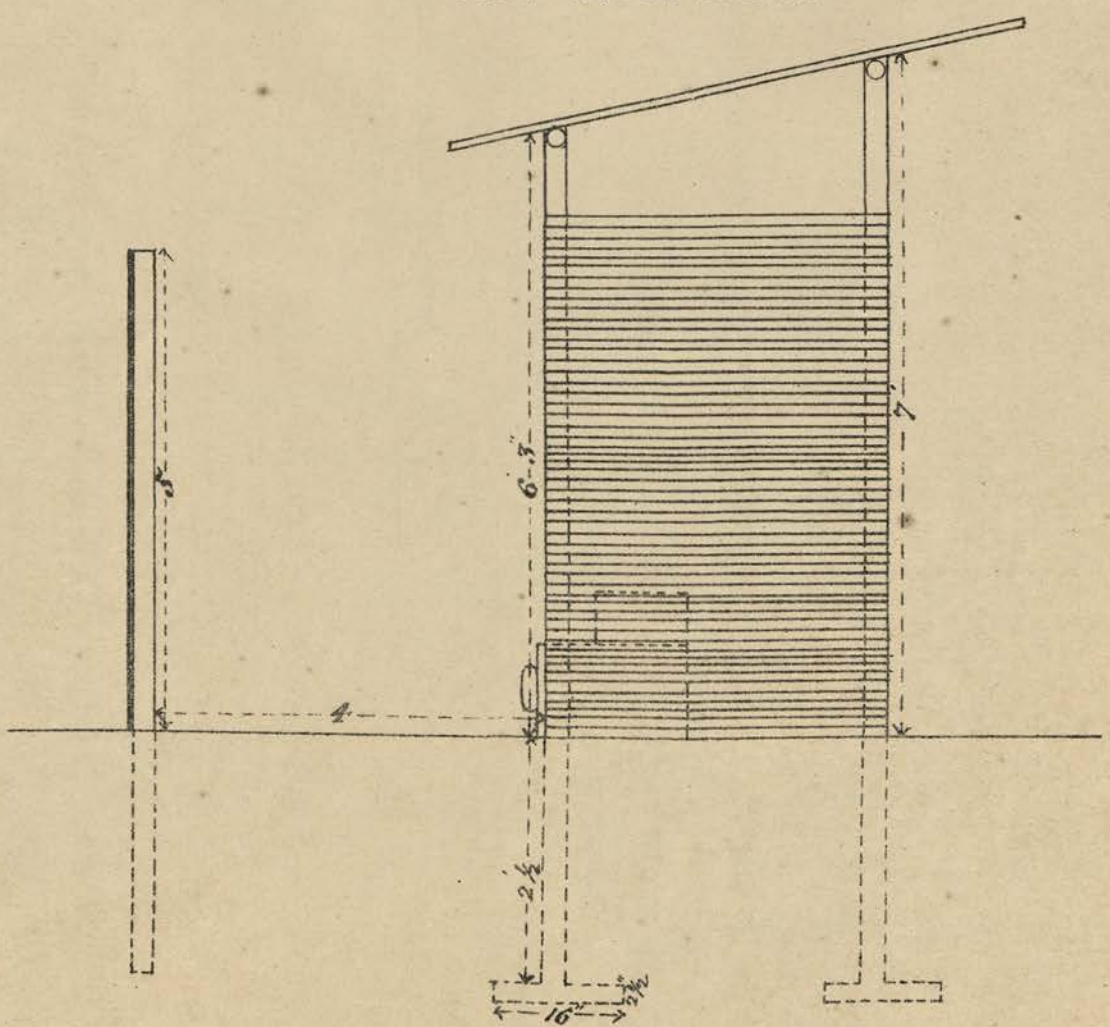
designed by

Colonel Goodfellow V. C. R.E.

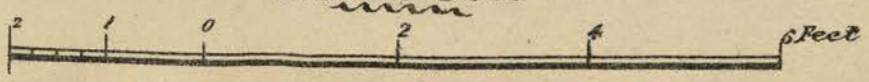
Plan



Side Elevation



Scale in Feet



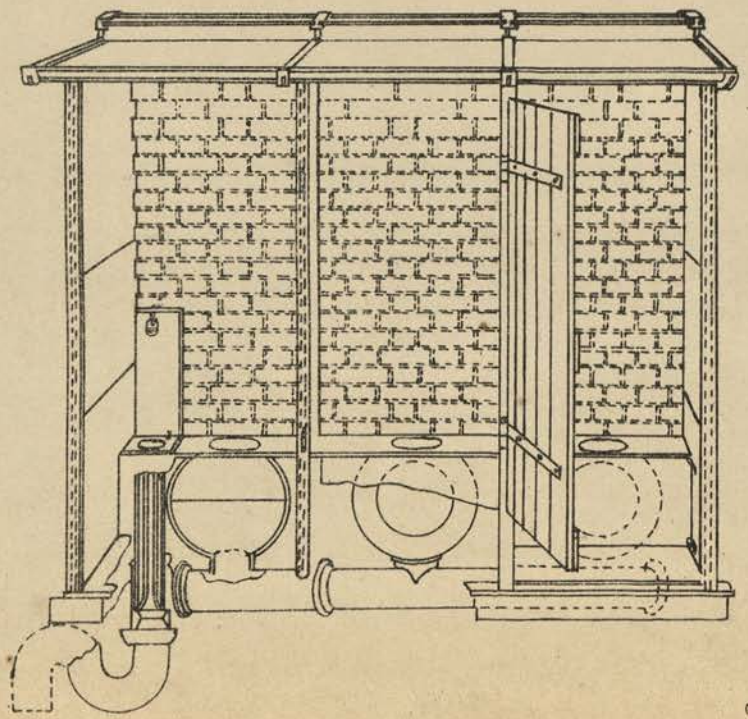
Govt. Photozincographic Office, Poona, 1880.

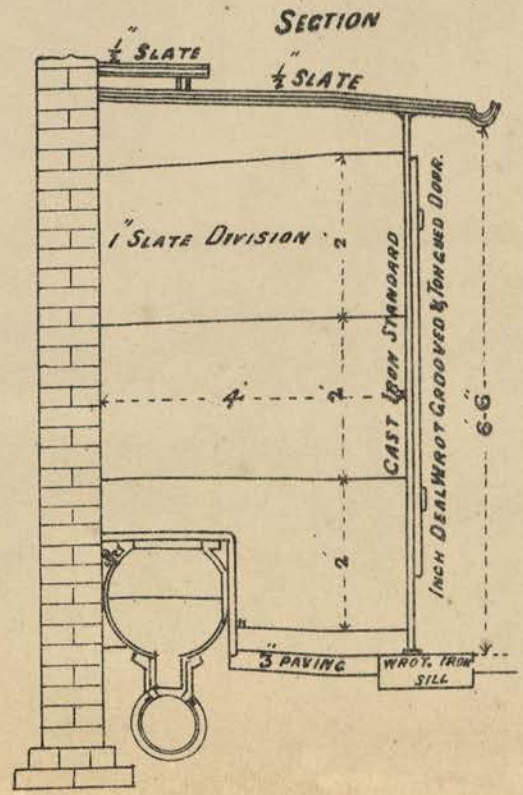
JENNINGS PATENT LATRINES

as arranged for

BARRACKS, WORKHOUSES, ASYLUMS, SCHOOLS, RAILWAY STATIONS,

FACTORIES, &c





Govt Photozincographic Office, Poona, 1880.

the post line : the rests and shoot can be had of cast-iron in one piece. The obvious intention is that each new corner may have a clean seat, that the water he uses for ablution shall clear the shoot, and that the accumulating deposit shall be out of sight. Now, in all latrines where water is not the moving power it is a prime object, that as little fluid as possible be added to the natural excretions, for clearly the less there is to be removed the less carriage will be needed, and its cost will be reduced. In this light the shoot is an embarrassing factor, for it is not like a down take pipe through which all of less diameter *must* drop : it is merely an incline, and not a sharp one, on which friction very soon counterbalances gravity. Of the many who use it a percentage will come and go innocent of ablution, and they are the disturbing units : their neglect must create a block, and the greater the block, the more water must be used to clear and cleanse it. Under ordinary circumstances the total for removal is represented by the excreta, *plus* the water of ablution, and the latter is always in excess : taking their relative proportions as 5 to 1, they would be at least 10 to 1 in these latrines, and this is their weak point. It has been urged that they should be without roofs, but if some little consideration is not paid to the convenience of those for whom they are intended, the chances are they will be avoided—like those at Sholápur—or used so carelessly as to give extra trouble. Then again during the hot season there must be a time in every day when the cast-iron foot-rest acquire a temperature of something like 120° "Fahr." and at those times, and until they have cooled down, their use is impracticable : as a matter of fact a loose covering of boards had to be provided at Poona, and they were a perpetual inconvenience. In the monsoon, too, there is constant trouble. One heavy storm fills the buckets to overflowing, and each shoot then acts as a gurgoyle, so the ground in rear is sewage flooded. Eaves gutters and surface cuts would soon dispose of roof rain-fall, for that is clean, but this overflow is too filthy to be passed into any channel. The conditions here described are no fancy sketches, for they were noted—one and all of them—in the N. I. Lines at Poona where these latrines have been adopted, and they convinced me that a roof is not only an advantage, but a necessity.

Kárwár pattern.

19. Another form of latrine is that put up for the Kárwár High School by Colonel Goodfellow, V.C.R.E., and it has been such a success, that now, after some years of trial, it may safely be recommended for general adoption. In its simplest form it may almost be described as a receiving vessel just sufficiently covered in for privacy and shelter. There are 4 corner posts, bamboo battens, and a pent roof—a couple of stones serve for foot-rests, and between them is the receiving vessel. There can be nothing more simple, and more serviceable, for their is really nothing to get out of gear. Neither costly nor perishable masonry to become tainted and foul, no chunam to be still more offensive, nor a carrier shoot that must choke : and the receiving vessel may either be used as an ordinary commode, and emptied frequently, or the dry-earth system may be adopted. Should there be a trace of soakage the entire flour can be dug up and renewed. At moderate cost it might occupy the most prominent positions, and it can easily be so modified as to connect with a sewer. There is no reason why it should not be introduced for European troops, for the position it entails is that adopted in marching and on field service ; indeed, the filthy condition of the seat very frequently enforces it in hotels, and railway stations, steamers, and such like places, and it is soon acquired, and when acquired is not irksome. At increased outlay it may be made to suit the best houses : the corner posts might be of squared teak, hoop iron latice work or louvers might replace the bamboo battens, and there might be patent tiles instead of corrugated iron, and the receiving vessel could be of copper or zinc, or glazed stone-ware. A strong point in favour of these latrines is their cheapness : they can be run up for Rs. 25 per seat whilst the others range from Rs. 34 to Rs. 71. For sewered cities, however, there are perhaps no more suitable public latrines than those of iron with segmental troughs well trapped, and the best in my opinion are those made by Jennings of Lambeth (see sketch) : they can be made with louvres instead of brick work. In rural districts the main points to be looked to are an impervious receiving vessel, a superstructure through which the wind can blow freely, and the *absolute* absence of chunam and masonry of any kind.

Water closets.

20. As regards water closets there are certain points which should never be overlooked. If they cannot be detached they should always be against external walls. Their water supply should be separate, and distinct from that for domestic use generally, and they should be so ventilated, that any gas escaping through the water seal shall not escape into the house. At ordinary times the lid of the seat should be closed, and the plug-handle should work through it. The casing should either be removable bodily, or it should be so hinged, that the top may lift up, and rest against the wall, whilst the front falls, and rests on the floor. In this way everything is fully exposed for such examination, or repairs, as may be necessary.

Disposal of Refuse.

Refuse.

21. None probably will question the expediency of restoring to the land the richness it yields to the crops which cover it, and by a wise provision this can be effected with the refuse of our towns, and villages. This refuse comprises the natural excreta, and waste of all kinds from enclosures, houses, and out-houses; from public, and *quasi* public buildings, and grounds, from trades, manufactures, and industries; and from one and all of them the very refuse of the refuse may be turned to account. In these days science, and competition have so cheapened, and multiplied the luxuries, and necessaries of life, that the demand for them can no longer be met from ordinary sources, and not only are the most offensive materials laid under contribution, but, in dealing with them, the effluvia they evolve are intercepted, and made to give up whatever they have of immediate use, or prospective value. If combustible they are passed through fire; if condensible they are subjected to cold, or they are absorbed by substances for which they have a stronger chemical affinity; and whilst their utilization is a public benefit, it is not altogether unremunerative to those concerned. On the score of health, to say nothing of comfort, and cleanliness, it is essential, that refuse be removed from inhabited areas, and obviously it is an advantage so to deal with it, that the nuisance inseparable from it shall be minimized, and that the cost incurred may be more or less recovered. Its *speedy* removal is desirable because it contains so much organic matter *often infected with the specific contagion of infectious diseases;* and as Dr. Ballard has pointed out in his exhaustive paper on "effluvium nuisances" the most dangerous effluvia are those "which have their origin in the spontaneous decomposition of organic matters, and especially of animal matter, the composite elements of which are being broken up under the operation of a septic ferment." Now in sewered towns the liquid waste is led to an outfall, but here it simply disappears, and all cost connected with it is saved at the expense of a polluted sub-soil. Of the more solid refuse some is taken by brick and tile makers, and potters, and there is no objection to their having it, provided always, that they use it with ordinary care, that their works are properly situated with reference to other buildings generally, and that they are inspected. Though ryots, as a class, are keenly alive to the value of manure for agricultural purposes, they make little or no systematic attempt to collect the materials which would supply it. To some extent individuals store up the refuse of their own areas, but this is as nothing to the amount that lies uncollected. They store it too in the most objectionable manner close to their houses, so the larger the village the more are there of these noisome house-heaps. Remembering how largely they are made up of "animal matter the composite elements of which are being broken up under the operation of a septic ferment," and bearing in mind, that old and young are exposed to their influence at those very hours when the system is most susceptible, can any one doubt as to their being a fertile disease cause.

Its value.

Report, Local Govt. Board, 1876-77.

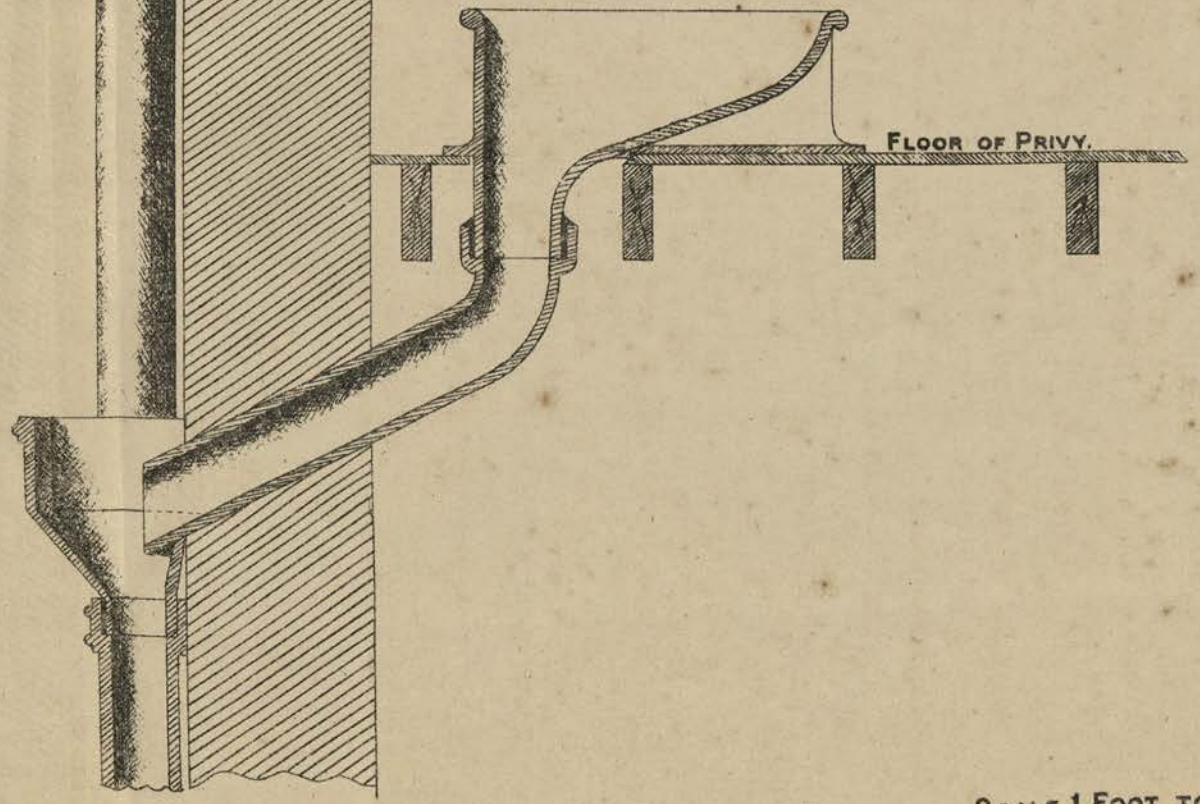
Utilization at Násik.

22. The systematic utilization of town sweepings and night-soil was first carried out at Násik, under the supervision of Mr. Smith, formerly an Inspector in the Health Department of the Bombay Municipality, and the results have shown beyond a doubt, that the natives will waive their strongest prejudices when it is brought home to them, that they clash with their material interests. Násik is one of the sacred places

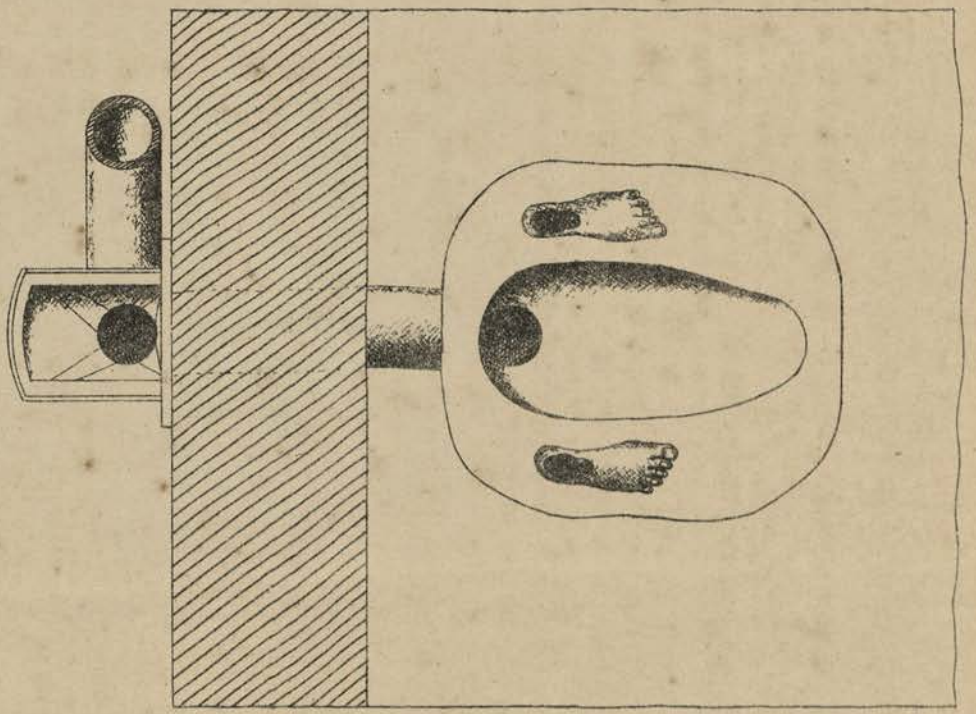
DESIGN FOR PRIVY SEAT IN NATIVE HOUSES.

WALL OF HOUSE.

SECTION.



PLAN.



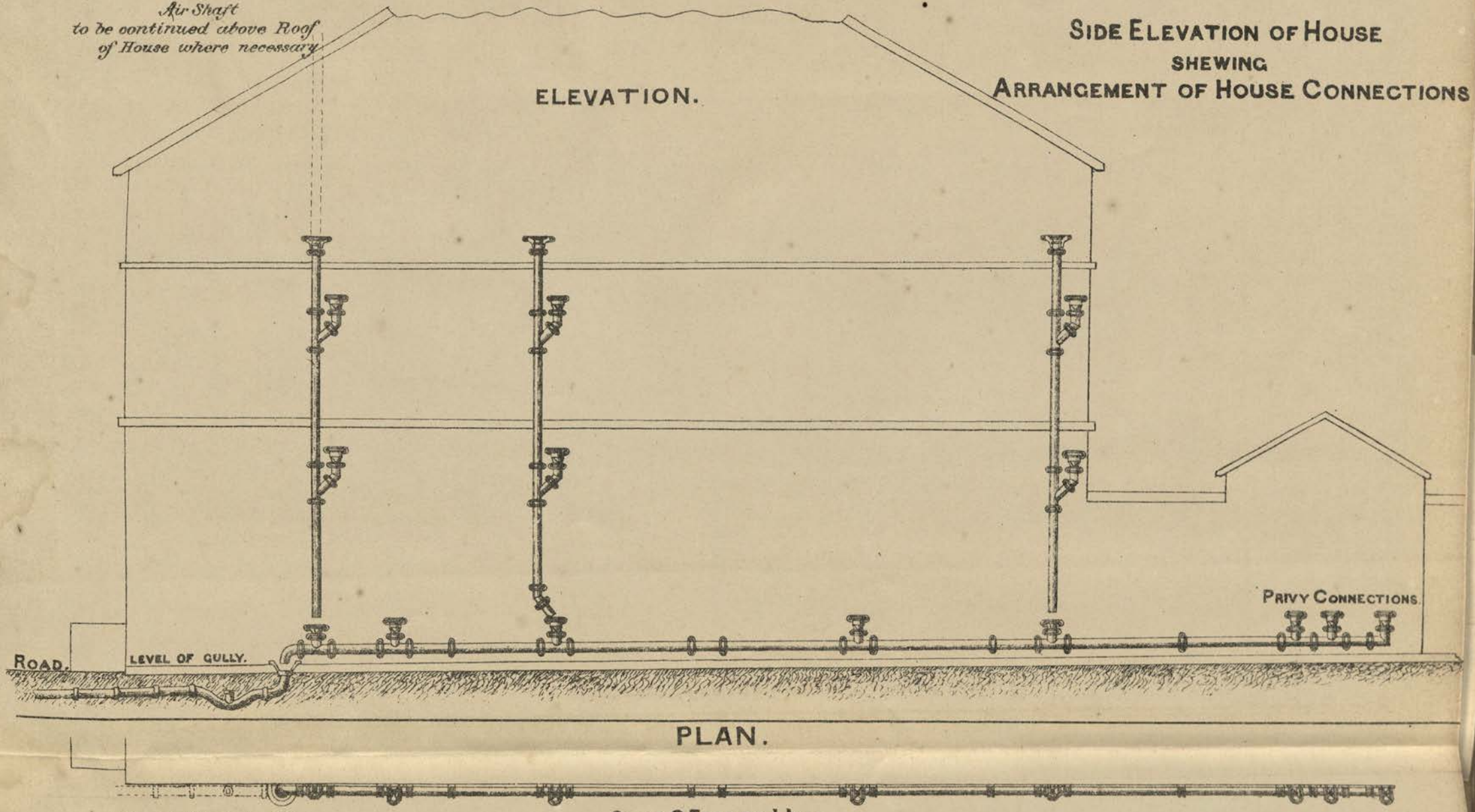
SCALE 1 FOOT TO 1 INCH.

R.G. Walton.
M. Inst. C.E.

Drawn by H. Rowjee.

Photozincographed, Govt. Office, Poona, 1880.

SIDE ELEVATION OF HOUSE
SHEWING
ARRANGEMENT OF HOUSE CONNECTIONS

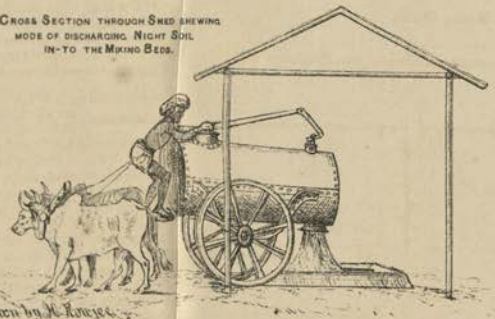


SCALE 6 FEET TO 1 INCH.

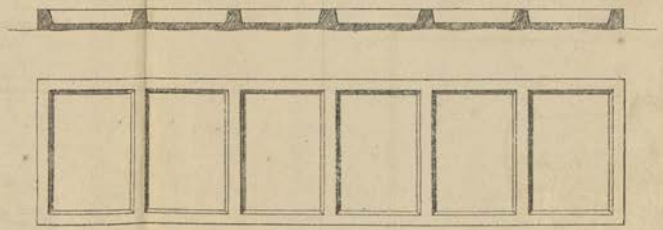
Photozincographed, Govt. Office, Poona, 1880.

General View of arrangements for disposal of surface refuse, & night soil.

Cross Section through Shed shewing mode of discharging Night Soil in-to the Mixing Beds.



Plan & Section of Mixing Beds.



Govt. Photozincographic Office, Poona, 1880.

of India, a very hot-bed of Hinduism, and the people were perfectly aghast at the bare idea of having anything to do with refuse, and night-soil, but the manufacture was commenced, and continued; and although the compost was offered *gratis*, no one would come forward to take it. At last the opportunity presented itself, and it was tried on a small field, and the crop was so temptingly rich, and in such contrast to that of the field adjoining, that its owner was induced to try it. He too was repaid for his venture, others followed his example, the storage heap was soon cleared off, and the demand now exceeds the supply. At Sholápur, Mr. Robson, another ex-Inspector, is carrying on the same system, and there, as at Násik, the compost has a ready sale. At Kolhápur, under the personal supervision of Captain Ferris, the Assistant Political Agent, it is also carried out, and the town sweepings, and the excreta of some 40,000 persons, formerly lost, are now utilized on sugar-cane fields in the vicinity. At Poona too it has been most successful. Here we have a large and important city of more than 100,000 inhabitants, directly to windward of our largest Military Station. Formerly the refuse, and night-soil from camp and city were buried in pits, and trenches, and though their value was supposed to be realized, the results were far from satisfactory. As a first step the city pits were abandoned, and, in following the Násik lead, the Municipality have been even more successful. At a place lying south of the city, unfortunately south-west of the camp, but more than 3 mile, distant, the ground has been marked out, and divided into plots, or mixing beds, 18 feet square, and 1 foot deep. To this place (see sketch) the refuses and night-soil are brought, and the former is burnt, in the open, and the ashes are roughly screened, and laid down in the mixing beds to a depth of 1 or 2 inches. The night-soil carts are then backed to the edge of the beds, and emptied and when the ordure has found its level it is covered with another layer of ashes, and remains undisturbed for 24 hours. It is now broken up, more ashes are worked into it, and the whole is left for 48 hours: it is then broken up for the second time, and spread out to dry, and finally it is stored, an inoffensive, inodorous, and valuable manure. So thorough in the deodorization that it may be taken in the hand, and held to the nose, without a trace of its original taint. For house garden use it should be finely pulverised and screened, and exposed, but for agricultural purposes this is not necessary. For some eight months in the year the operations are conducted in the open, but during the monsoon the mixing beds, and storage heaps are covered in, and there is a long shed in which the refuse is spread out, and turned over, and over, to dry it for more easy burning. In the hot weather the compost is ready in 4 days, in the cold season in 6, and in 12 during the rains.

At Sholápur.

At Kolhápur.

At Poona.

Poona compost manufacture.

23. The night-soil carts are of the Bombay cylinder pattern, and there are 22 of them. Each has a capacity of 18 cubic feet and each makes 2 trips daily; but they are only despatched $\frac{3}{4}$ full, as space is left for the gas which generates so quickly: the daily collection is about 575 cubic feet, or a little under 16 tons. From 65 to 75 cart-loads of dry refuse are collected daily, about 1,950 cubic feet, but after burning there are only 300 cubic feet of ashes, about 8 tons. For good compost the night-soil, and ashes should be in nearly equal proportions, but here they are as 2 to 1, so there is a waste of strength. With better scavengering the amount of collected refuse might be increased very considerably, and with more thorough combustion there would be more ashes. Earth too might be obtained to mix with the ashes by insisting, that each cart sent for manure shall bring a small load fresh, and clean. The night-soil loses about $\frac{1}{4}$ of its bulk in drying, so taking it at 430 cubic feet and the ashes at 300, the daily out-turn of compost is 730; rather more than 20 tons per diem, or 7,401 per annum. It is sold at 27 cubic feet, or $\frac{3}{4}$ ton, 96 ordinary iron basketfuls for 1 rupee, so it brings in Rs. 4,934 a year. The following are the expenses attendant on its manufacture:—

Plant, and compost out-turn.

1. Carriage of 44 cart-loads of night-soil from City to Depôt by 22 pairs of bullocks (with drivers) at Rs. 24 per pair per month ... Rs. 6,336 per year.
2. Ditto of refuse. From 65 to 75 cart-loads by 25 pairs of bullocks (with drivers) at Rs. 18 per pair per month ... ... „ 5,400

3. Working expenses at Depôt for burning refuse, screening ashes, mixing night-soil, &c.	... Rs.	2,664 per year.
4. Maintenance of Depôt sheds and mixing beds ...	... „	900 „
5. Repairs to refuse and night-soil carts	... „	2,500 „
6. Tools, plants, and contingencies	... „	200 „
	Total cost Rs.	18,000

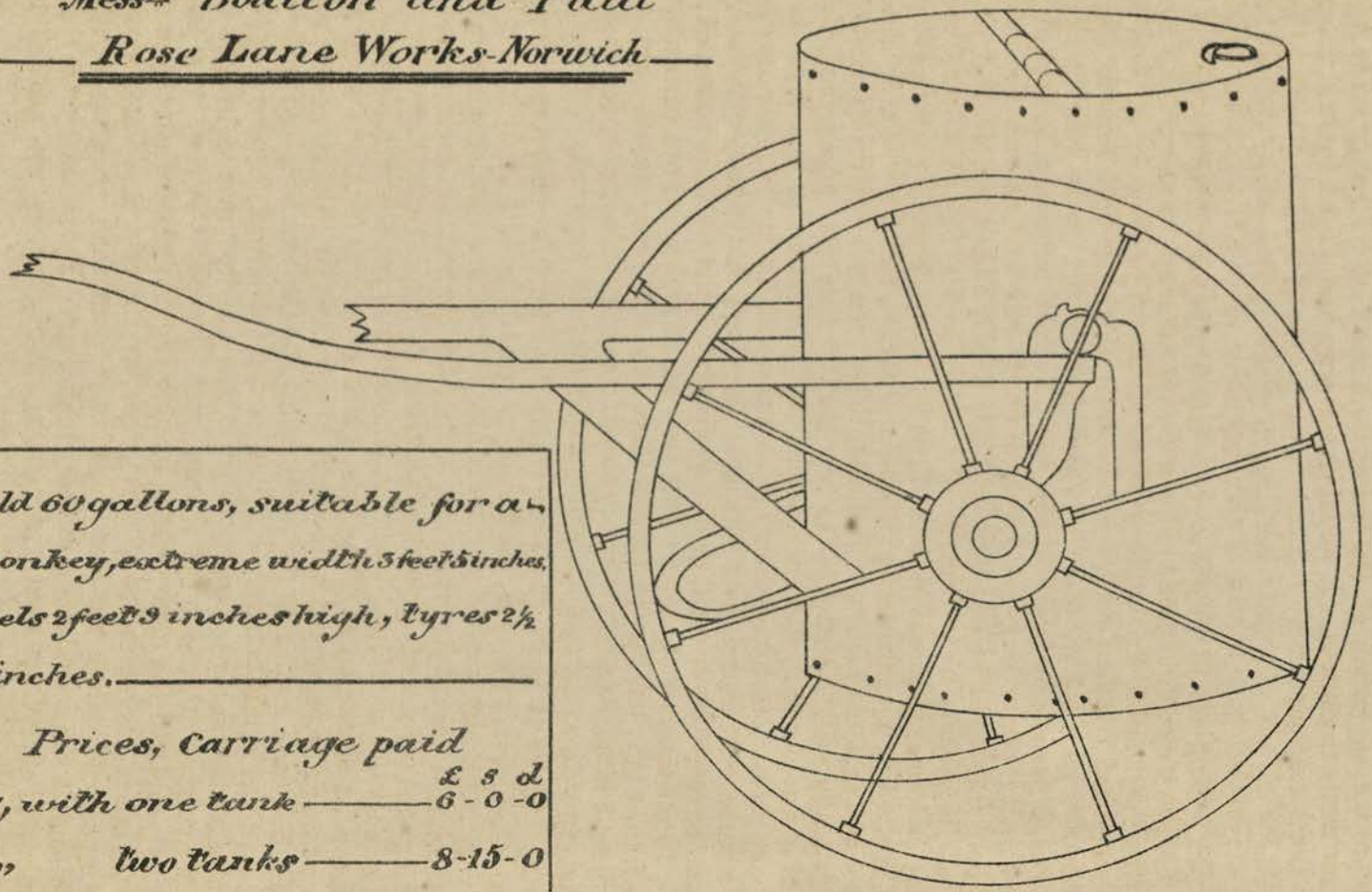
24. As the Town sweepings and night-soil *must* be removed it is well for the Municipality that they so deal with them as to recover one-fourth of the cost incurred; and looking at the selling price of their compost it might perhaps be doubled without affecting the demand for it. At Poona as at Násik it was some time before cultivators would come forward, but no sooner had they not over their scruples than the demand exceeded, and exceeds, the supply. They now come 15 and 20 miles for a cart-load, and register their names, and deposit their money, 4 and 6 months in advance to ensure a timely supply. The following are the yearly quantities of compost manufactured and the values realized :—

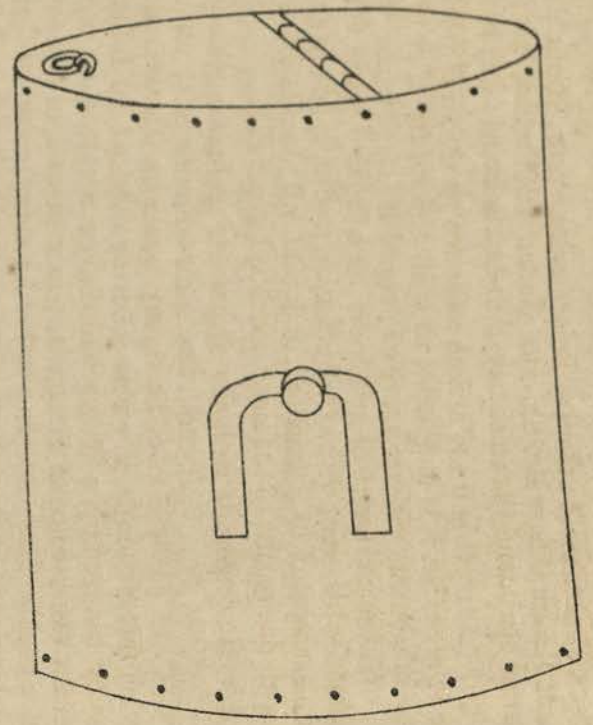
Years.	Approximate quantity manufactured.		Amount realized.
	In Cubic Feet.	In Tons.	
			Rs.
1874-75	60,000	1,666·7	766
1875-76	90,000	2,500·0	1,308
1876-77	120,000	3,333·3	2,632
1877-78	150,000	4,166·7	2,840
1878-79	220,000	6,111·1	4,356
1879-80 . ... (April to 31st December)	200,000	5,555·5	7,438

In this return the last line is for 9 months only, but calculating it for 12, it will show, that for the 6th year, the out-turn was 4 times that of the first, and the amount realized was 12 times as much. No less gratifying is it to think, that what has been done at Poona, at Násik, at Sholápur, and at Kolhápur, might be done at every town, and cantonment, large or small, throughout the Presidency: as at those places so elsewhere the establishment of the supply would create the demand.

25. The site of the Depôt was not happily chosen, for though it is well placed as regards the city, it is on a spur which flanks the Sátára road, and being always *in evidence* it invites attention. Visitors to Mahábleshvar complain of it because for 5 minutes, 4 times a year, it gets betwixt the wind and their nobility, and the military authorities affect to recognise its effluvium within camp limits. But these hardly come into court with clean hands. For years past the conservancy arrangements in the Poona Cantonment have been notoriously defective, and those for the disposal of refuse can only be described as culpably careless. To the S. W. of Camp the ground on either side of the Sunkersett Road is now so cultivated that it *must* have manure, and beyond a doubt night-soil from camp has found its way on to it. Sweepings too are taken there, and cantonment carts may be seen constantly emptying their loads on fields within the influence of the canal. The ground at Gool Tekri was also a place of deposit, and there the absence of arrangement was simply disgraceful, so it may fairly be questioned whether the effluvium nuisance complained of comes from the Depôt, or from the intermediate ground so liberally supplied with cantonment filth. Ther processes at the Depôt are somewhat roughly conducted, as are most district operations, but they serve the purpose, and the only improvement that might justifiably be suggested would be in combustion, so as to get more ashes for the mixing beds. A new site has been selected, and there perhaps this can be effected, but before the old one is given up it is only fair to place on record that its management reflects the greatest credit on all concerned. As an instance of conscientious duty it deserves to be recorded, that work so offensive, was, in all its details, supervised by a Brahmin—Mr. Madharao Yeshwant Paranjpe, Health Officer for the City, until his death in 1877. And he was ably assisted by

Swing water or Manure Cart
by
Messrs Boulton and Paul
Rose Lane Works-Norwich





To hold 60 gallons, suitable for a Donkey, extreme width 3 feet 5 inches. Wheels 2 feet 9 inches high, tyres 2½ inches.

Prices, Carriage paid

	£	s	d
Cart, with one tank	6	0	0
,, two tanks	8	15	0
Valve and spreader—extra	1	1	0

Photozincographed, Govt Office, Poona, 1880

another Brahmin—Mr. Nursu Ramchandra, now Municipal Secretary. The present Health Officer Mr. Shivapa Narsu, a Mahratta, has taken up the task in the same spirit, and the efficiency of to-day is largely due to his supervision.

26. As regards the effluvium nuisance produced it would be absurd to say there is none, but it is impossible to treat the refuse of a town and the excreta of its inhabitants without more or less of it at the spot where they are dealt with. The manufacture of manure is an offensive trade, but the most that can be demanded is, that, with other offensive trades, it be relegated to a place where the nuisance shall be minimised, and that all details be conducted carefully, and with due regard to the neighbourhood generally.

Improved night-soil cart.

27. In connexion with the *disposal* of refuse is the question of *removal*, and, for night-soil, there is an excellent description of tank cart made by Messrs. Boulton and Paul of Norwich (see Sketch). It seems specially adapted for India as it can be drawn either by hand, or by a single bullock, or a tattoo, or a donkey: in fact the attendant sweeper might manage it. In a place like Bombay, or in any large town, a couple of men working it down a street, would effect a saving in time, and labour, and it is well worth a fair trial. It has had one at Hyderabad in Sind, at the suggestion of Dr. Holmestead, the Civil Surgeon, and it answered his warmest expectations. It would probably be useful for Regimental Latrines, and Lines generally.

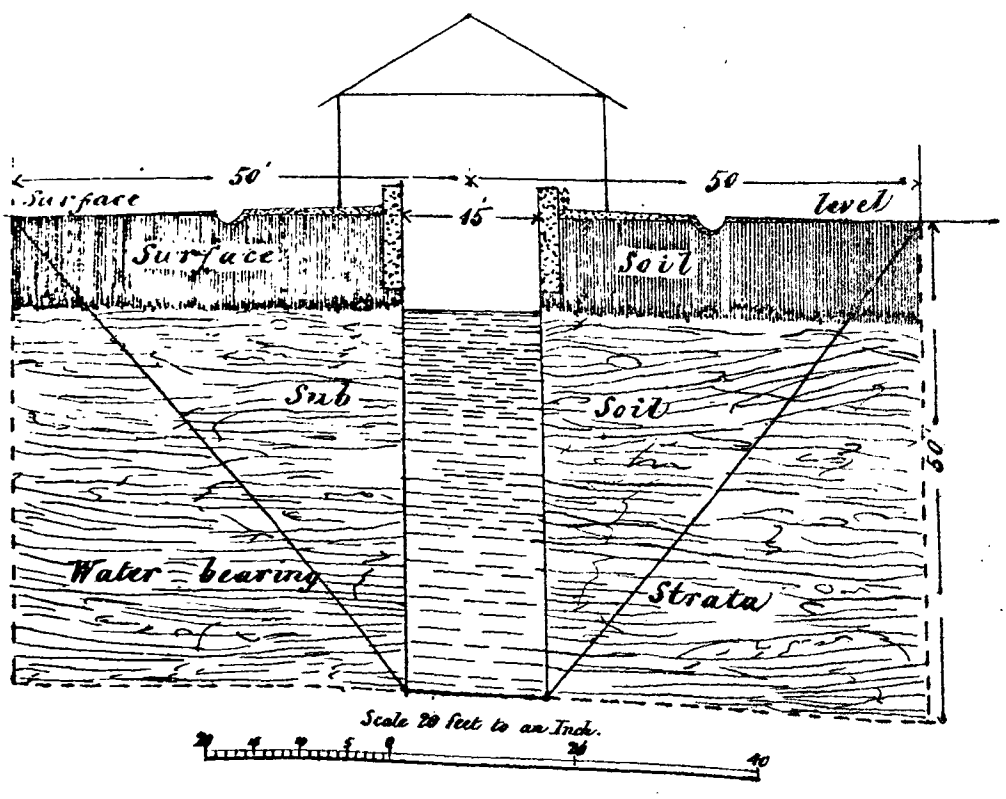
Water Supply.

28. A paramount duty in every community is the conservation of its water supply, and a careful inspection of it is one of the most important of the many functions assigned to the Sanitary Department. The value of a supply must be determined by a local examination of such proximate and remote conditions as may affect its purity, and the standard of purity must be determined by analysis, if possible by *local* analysis: but no great knowledge is needed to say how existing purity may best be maintained, and to this end the tanks and wells are always visited, and their condition noted, and, when necessary, reported on. If *quantity* be considered without reference to *quality* the people of to-day owe much to those old benefactors by whose liberality great rivers have been flanked by magnificent ghâts for easy access, and by whose philanthropy were built those marvellous aqueducts, those immense reservoirs, costly tanks, and as costly wells. An honour to any country they are indeed the great heritage of a generous past, but an ignorant and apathetic disregard of the most ordinary precautions that ordinary prudence would dictate have almost converted into a curse what should be a priceless blessing; and whether it be running stream, or reservoir, or tank, or dip, or draw well, the water is invariably polluted. In the schemes of the west it is kept out of sight, and out of reach, until it runs from a tap; but here in the east there is a too ready access to it *in bulk*, and in bulk it is a common property to all in caste, and not only for men but for animals as well, so the cumulative impurities may be imagined.

29. There is not perhaps one single river running past a town or village, of which, in the dry season, the bed is not grossly polluted. If it be cultivated, and very frequently it is, no attempt is made to remove the decaying vegetation: it is a common ground for cremation, for burials, for bathing, cooking, and clothes, washing, and for several objectionable trade purposes: cattle wander there at will, it is a public urinal, and latrine, and as often as not the water-supply is taken from a point down-stream. The most glaring instance of this is at Ahmedabad. The pumping engines, and head-works of a faulty distribution have there been established in a garden on the river below the Cantonment, and below the City with its 100,000 inhabitants. For this garden there was formerly the conventional mote for raising water, but when it was inherited, or acquired, by the Municipality, and a water-supply scheme was brought forward, they somewhat hurriedly replaced the mote by the pumping engine. And when the mistake was pointed out it was attempted to prove, that, by analysis, the water down-stream at the pumping station was four times more pure than that up-stream at the Shahibagh, some considerable distance higher up. For about 3 years the question of improved supply has been under consideration, but as yet nothing has been done.

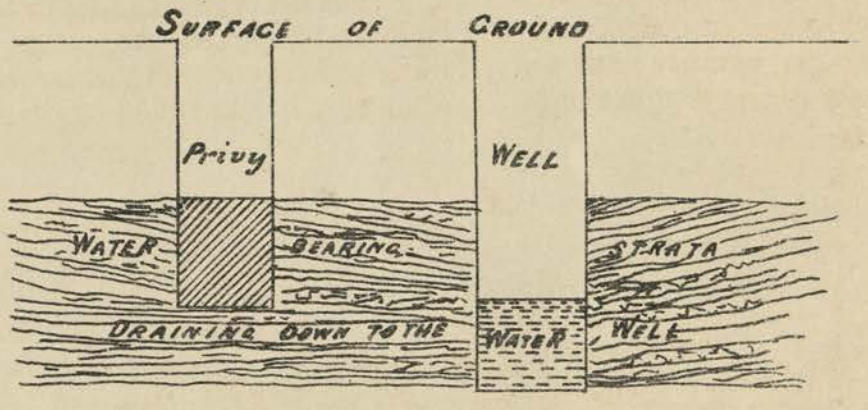
30. In connexion with our water-supply in India, there are two points which must never be overlooked. Our tanks and reservoirs are filled with the rain water, that runs over the surface, so the cleaner that surface be kept the purer will be the water collected; and were there no other reason, this alone would be an unanswerable plea for the strictest surface conservancy. The other point is that foul soakage into the subsoil necessarily contaminates the water that follows it. But if unchecked there is a greater risk: it will eventually reach the water-bearing strata, and pollute the supply which feeds our wells.

31. In a memorandum of the Army Sanitary Commission on the practical application of sanitary principles to the smaller class of towns and villages, there are 3 diagrams which illustrate these points so graphically, that I make no apology for reproducing them here. The first shows how a water-supply may be polluted underground by the juxtaposition of wells and privies, or cesspools, on the surface, and had it been drawn for a report on Bombay it could not have expressed the condition with greater truthfulness. There, in some wards more than others, the sub-soil is almost honeycombed with cesspools, and saturated with foul soakage from badly built privies, whilst privy and well, or cesspool and well are too often only a few feet apart. The introduction of Vehar water has mitigated the evil, but the wells are still very largely drawn upon, and in a general way it may be said their yield is polluted. Another diagram shows how a supply of naturally filtered water may be obtained by sinking wells near the margins of our tanks, and it is pointed out, that the water *in bulk* should be sealed to the public. These side wells are to be met with here and there, but they are far too few, and the construction of one or more (for high and low caste) should be compulsory for specially selected tanks, to be reserved exclusively for domestic purposes: no cattle should be watered there, no bathing be indulged in, no clothes-washing practised, nothing in short that would directly or indirectly pollute the supply. The third diagram shows how wells should be constructed, and although they have been made in India from pre-historic times, the principles here laid down have yet to be introduced. The depth of a well must necessarily depend on the depth of the sub-soil water level, but, whatever it is, the bottom of it should be regarded as the apex of a cone, of which the base, at the surface level, is equal to twice the depth. Thus supposing the depth to be 50 feet, a circle of 100 feet in diameter should be looked upon as the extent to which the well influence extends; and water falling or lying within that circle would find its way to the water within the well. This may be explained by diagram—



I

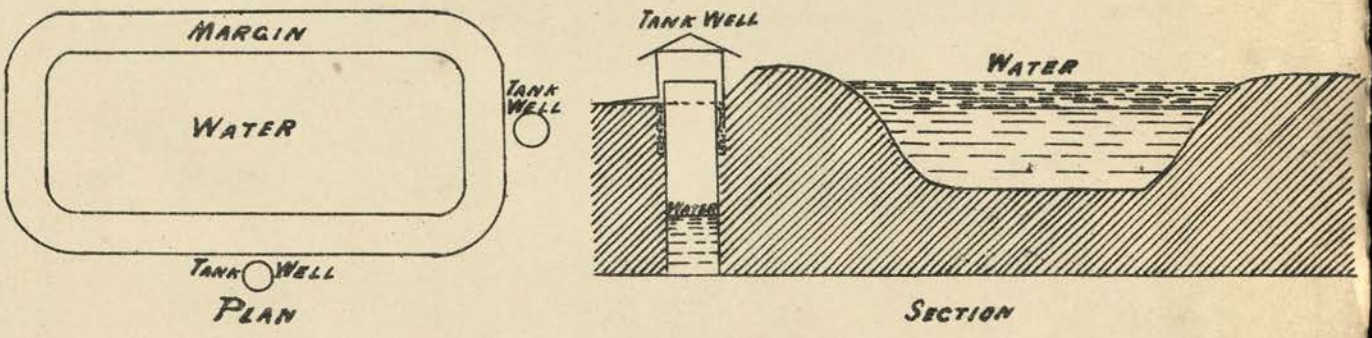
Diagram
showing how well water may be polluted
by
an adjacent privy or cesspool



Govt Photozinco: Office, Poona, 1880.

2

Diagram
showing tank with covered well
alongside into which the water filters naturally



Govt Photozinco: Office, Poona, 1880.

3

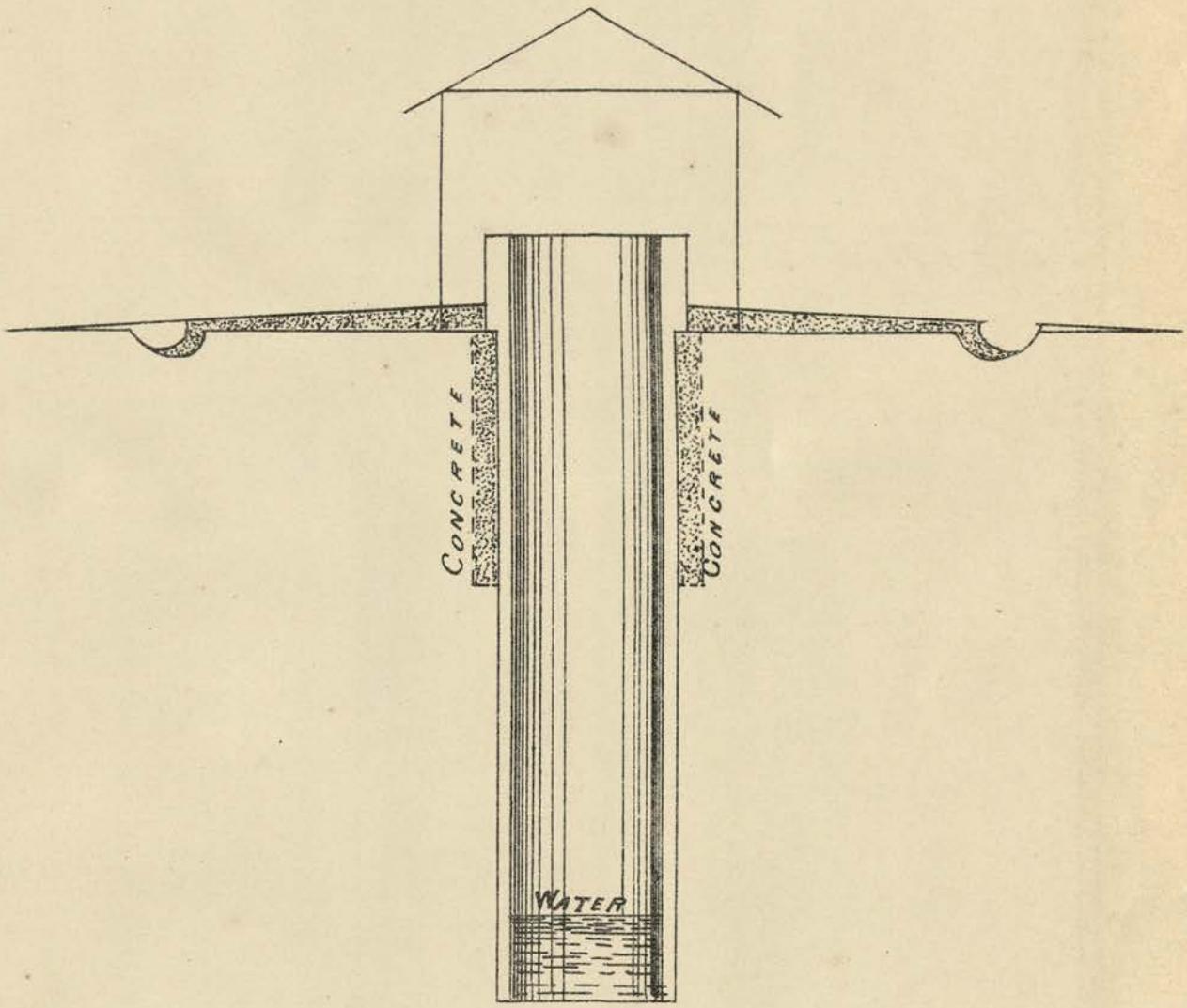
Diagram

Showing covered well,

with outer casing of concrete,

parapet, pavement, and catch water

channels



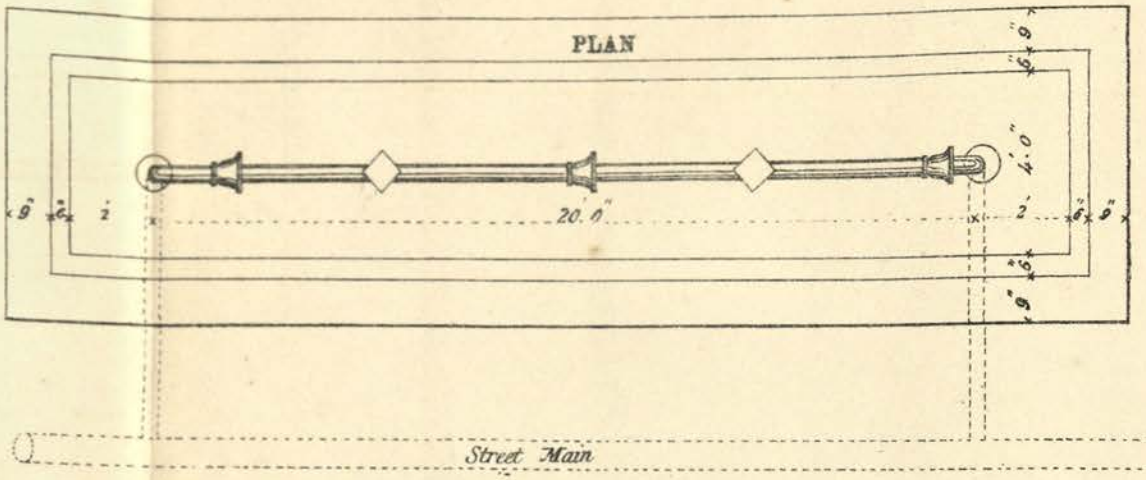
Govt Photozinco: Office, Poona, 1880.

NEW FORM OF HYDRANT

Designed by J. E. WHITING Esq., C. E.,

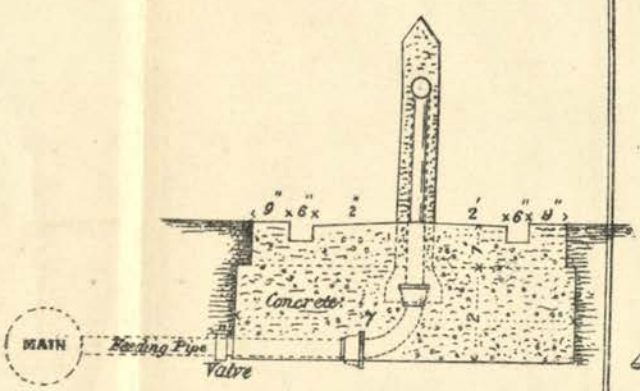
Scale 4 Feet to an Inch.

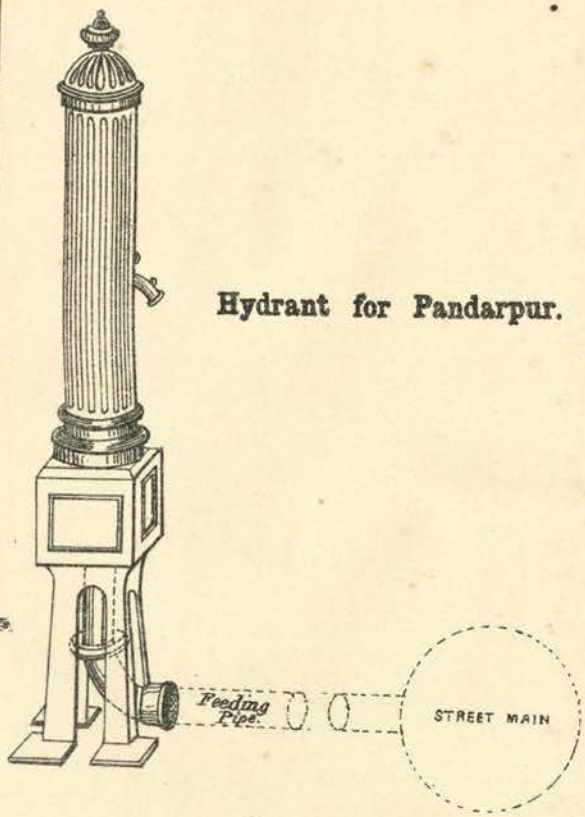
PLAN



Hydrant for Pandarpur.

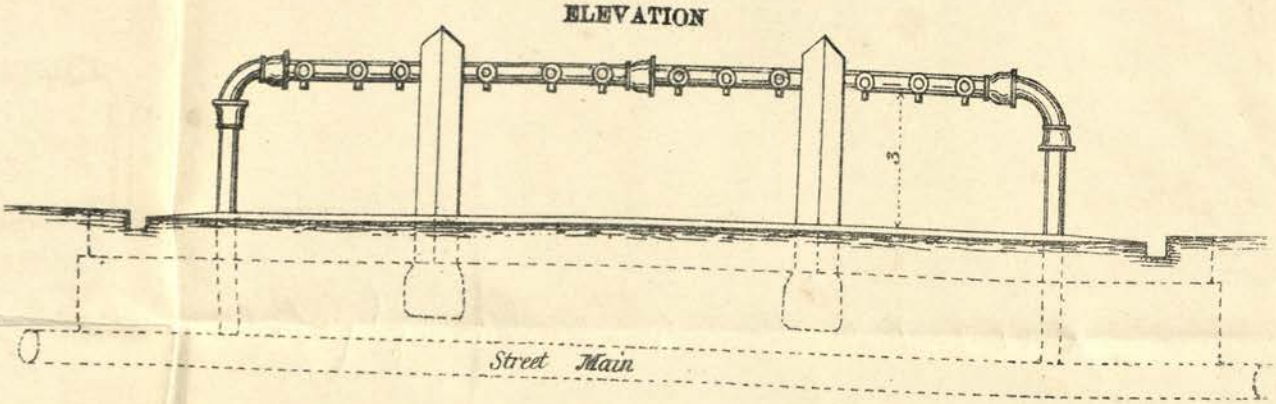
CROSS SECTION.





Scale 1 Foot to an Inch.

ELEVATION

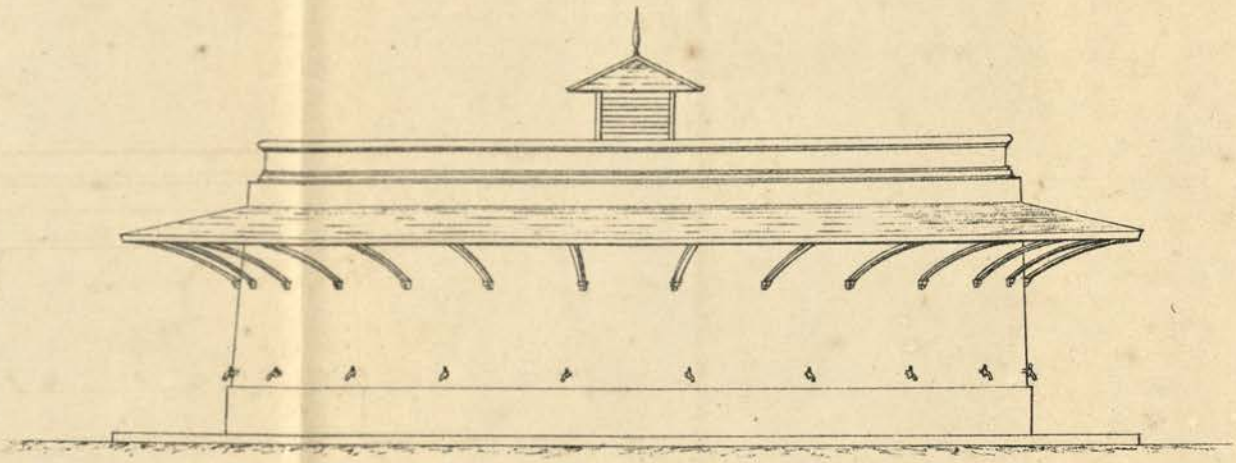


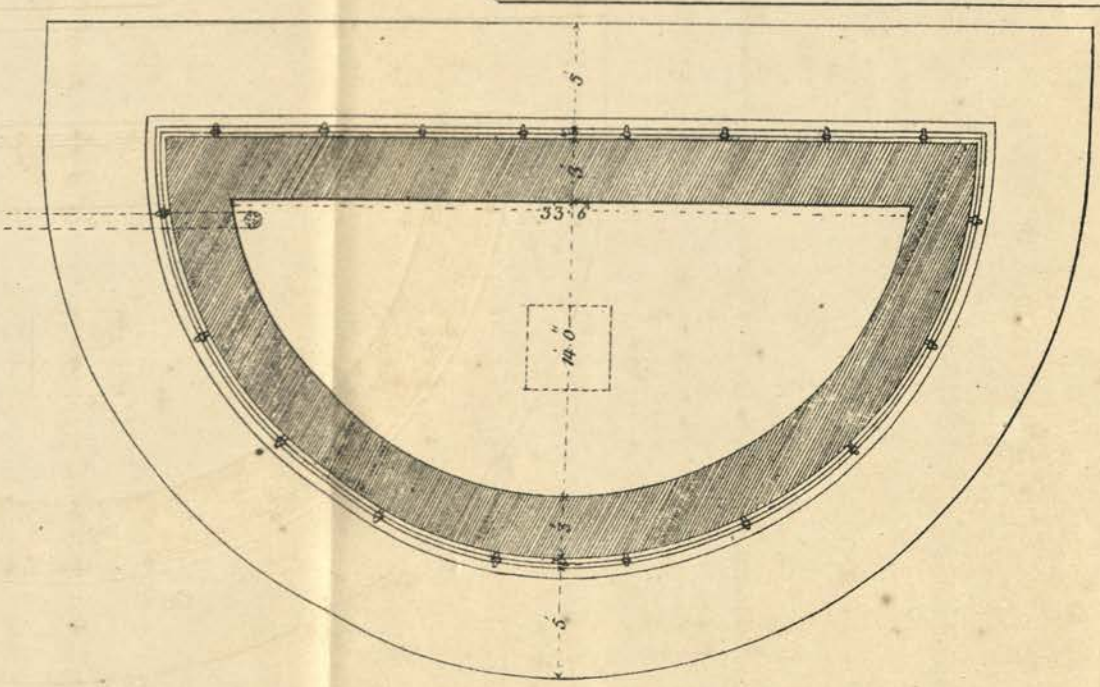
Govt. Photozincographic Office, Poona, 1880.

Sholapoor 29th April 1873.

Elevation & Plan
of Overhead Draw Well.
Pydhonee, Bombay.

Scale 8 Feet to 1 Inch.





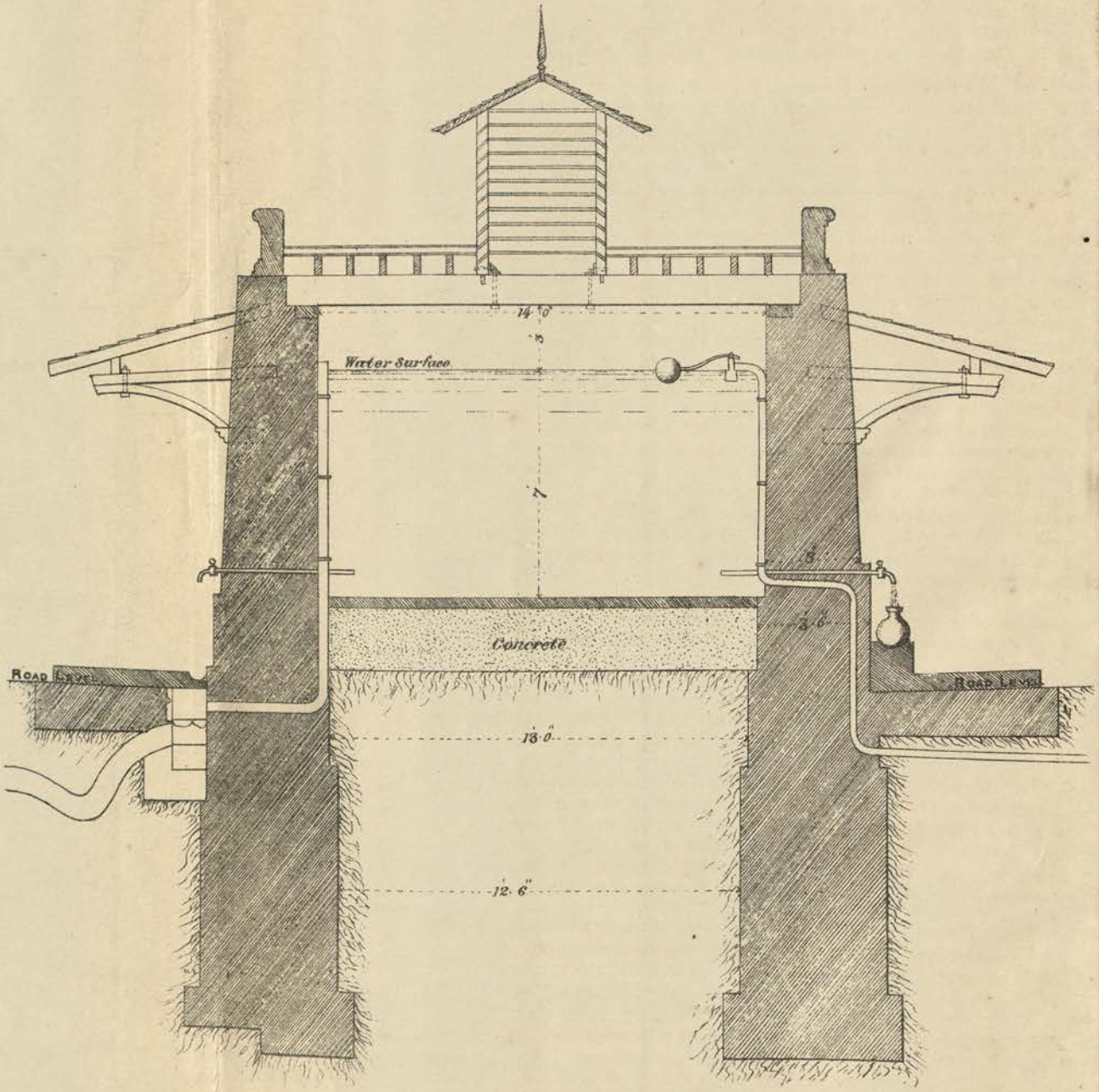
Drawn by H. Rowjee.

Photozincographed, Govt Office, Poona, 1880

Rienzi Walton
M. Inst. C.E.

SECTION
THROUGH OVERHEAD DRAW WELL.
PYDHONEE, BOMBAY.

Scale 4 Feet to 1 Inch.



Drawn by H. Rowjee.

Rienzi Walton
M. Inst. C.E.

Photozincographed, Govt. Office, Poona, 1880.

Here the well is 50 feet deep, and 15 in diameter, and its area of influence is shown by the diverging lines: any surface pollution within that area would, sooner or later, be communicated to the water in the well. It is urged that an outside casing of concrete should always be added, extending some 8 or 10 feet below the surface; and it is in this important point, that Indian wells are generally speaking so defective. The estimate for every well should always include the cost of an iron chain, and bucket, or it would be still better to have a lift, and force pump to fill a service tank from which the supply could be drawn. In this case the well might be closed in, and many a death by drowning would be prevented. The community could always supply the labor for the force pump, and the same well might then supply different castes from their own caste tanks. These tanks would be at some little distance from the well, in fact beyond its area of influence, so the water in *bulk* would be isolated, and preserved.

32. In those more favoured places where there is a reservoir, with its main, and branches for distribution, and pipes for delivery, there is the same constant need to guard against pollution, and the gathering ground of the reservoir should be a first care. The delivery to rate-payers, and such like, is by tap, and it should be the same for the poor, but, as they are legion, arrangements are required so that numbers may draw their supply at one and the same time. The main outcome of this necessity has been the *dipping well*, and nothing worse could have been devised. As its name implies it is a shallow well from which the watar can be lifted in the vessel brought for it; and it is generally an open stone built cistern with a parapet wall low enough to permit the dip, and broad enough to serve as a washing place for hands and feet, for all sorts of water vessels, and very often for dirty clothes. The more one sees of them the more objectionable are they, and every effort should be made to get rid of them: the construction of others should everywhere be prohibited. They may be replaced by various substitutes infinitely preferable, equally convenient, and far more suitable There is the common street hydrant with one or more taps, and there is as adaptation of it which has been in use for some years at Pandharpur, and in much appreciated (see sketch). There are the ordinary iron cube tanks—as many as may be necessary—connected one with the other, and fed from the street main by a syphon, and all fitted with taps; and there are the different descriptions of covered cisterns also fitted with taps. The principle in all is that the water in *bulk* is sealed to the public, and cannot be polluted. The Pydhonee cistern in Bombay (see sketch) is a pattern example of a public cistern, and though it is costly, it is perhaps cheaper in the long run to have one that will last for all time, with a minimum of outlay for repairs. Construction is a question for the Engineer, but the points of outside interest are a well drained pavement, and good taps, the screw taps are least liable to get out of order.

Water Analysis.

33. By a Resolution of Government in the General Department, No. 3804, dated 22nd October 1878, the appointment of a Travelling Water Analyst was sanctioned for 2 years, to examine the water-supply of the various Civil and Military stations, and Assistant Surgeon DeSouza was appointed, and joined the Department. Owing to delay in the fitting up of the requisite chemical cabinets, and in the training of Laboratory servants, he was unable to travel until the 15th March 1879, but up to that date, and by the courtesy of the Chemical Analyser to Government, he worked in the Laboratory at Grant Medical College, and there examined such transmitted samples as were received from time to time.

34. Before speaking of the work done it is very necessary to ask, that the attention of all concerned may again be drawn to the Rules framed in 1875 by Dr. Wellington Gray, and published under Government Resolution No. 2288, dated 30th July :—

Rules for the collection and transmission of samples of Water intended for Analysis.

1. The quantity of water sent for examination should not be less than half a gallon.

2. Glass-stoppered bottles are the best, and the most convenient kind for holding the half gallon of water is the glass-stoppered bottle known as the "Winchester quart." If these are not procurable, ordinary bottles of light coloured glass may be used, as it is impossible to ascertain when an opaque bottle is clean; they should be tightly closed with new corks, and the cork should be soaked in some of the water from the source for two hours before being used.

3. The bottles must be absolutely clean. They should, after ordinary cleansing, be washed out with a little strong sulphuric acid, then well washed with water till the washings are no longer acid, and finally rinsed out with some of the water to be sent for analysis.

4. The bottles ought to be nearly but not quite full. If a glass-stoppered bottle, the stopper should be securely tied over with a piece of clean calico.

5. The water of a tank or river should be collected from a place where it is not subject to artificial disturbance; in the case of a river the middle of the stream is the best place; and the entrance of floating impurities should be avoided by immersing the bottle in the water, taking care that the mouth shall open at a little distance below the surface.

6. Each bottle should be labelled with the name of the source and the date of collection.

7. The bottles containing water should be securely packed, and transmitted to the Laboratory with the least possible delay. During transit the cases should not be exposed to the direct rays of the sun.

35. In these Rules their is nothing impracticable. The Winchester quarts, or other stoppered-bottles of light coloured glass, are obtainable from the Medical Stores in Bombay, and with present facilities for carriage there should be no difficulty in keeping a sufficient number in stock to be issued when wanted. If, however, they are not obtainable three ordinary quart bottles, or six soda-water bottles, will answer the purpose; but they must be scrupulously clean. Those quarts are to be preferred which have held spirits, or wines: but those should be avoided which have held liqueurs, oils, sauces, and such like mixtures. As regards the cleansing of second-hand bottles, Dr. Gray says: "The object for which the use of sulphuric acid is recommended is to render the bottles perfectly clean, and this cannot be accomplished without the use of some very strong acid, such as sulphuric, a very cheap and common acid, and which ought to be obtained from any dispensary. If the bottles are not clean, the analysis is vitiated, and the same observation applies to the use of old, or dirty corks. I know of nothing to supersede the use of sulphuric acid and new corks. The collectors of water, as far as my experience goes, cannot be trusted to clean a bottle thoroughly with water, nor are they particular, in the absence of new corks, as to what kind of dirty stopper they use." As new corks may be obtained by Post, the use of others is inexcusable, and all else is a matter of very ordinary local care.

Samples for analysis.

36. It was hoped, that these Rules would have been observed, but samples are still received in all sorts of bottles, insufficient in quantity, closed with second hand corks, carelessly labelled, indifferently packed. The information too is often imperfect, always meagre, and sometimes misleading; indeed it is the rare exception when anything is stated beyond the bald fact, that the sample is from this or that well or reservoir. All samples should have distinguishing labels, and the date and hour when they were taken should always be entered; the one will tell the Analyser how many days the water has been in bottle, and the other will be some sort of guide as to what were the chances of outside fouling, and turbidity. From towns having a water-supply, and pipe distribution, it should be stated whether the supply is constant, or intermittent, whether the service reservoirs are covered in, or open, whether the pipes are anywhere subject to chance pollution, and whether the samples are filtered or unfiltered. In the case of tanks and wells it should be stated whether there are steps leading down to the water, whether the construction is that known as "pucca" or "cutcha," whether there is a parapet, and pavement with catch-water channels, and whether there

are sources of pollution, as privies, drains, and such like, near enough to affect them, and at a higher level. With running water it should be stated whether the samples were drawn at a point up-stream, or down-stream as regards the inhabited area. None of these matters can influence the analysis in its technical details, but they may enable the Analyser to indicate possible, and removeable causes of impurity. For instance at the close of 1878 cholera was prevalent at Neemuch, and a sample of water was sent down to be examined. It was in 3 ordinary quart bottles, corked, and labelled "*Neemuch* (*Well No.* 301) *taken on the* 27*th December* 1878. *Cholera prevailed in its neighbourhood.*" It contained 0·10 parts per million of free ammonia, and 0·11 parts per million of albumenoid ammonia, and there were rotifers. By analysis it was simply, and unmistakably bad, but the organic contamination may have been due to dirty corks. The well may have been a "cutcha" one in a foul subsoil, there may have been a privy, or a drain, near enough to it to affect it, or foul soakage may have percolated back into it. Each and all of these points would influence its value as a source of supply, but for want of information it could only be condemned. On another occasion, two samples were received from Nagpore, one was labelled "water from Reservoir No. 1," the other "water from a standard in the city." The total solids in each were 5·6 grs. per gallon, and the ammonia results were practically the same, but as there had been delay in transmission, other samples were called for. In sample No. 1, from the reservoir, the total solids were again 5·6 grs. per gallon, but in No. 2 they were only 2·8. No. 2 was probably a filtered sample. At other times there are labels like the following: From Aden No. 1 Haswa water. No. 2 from the Aqueduct. From Igatpuri during a severe outbreak of cholera samples from three wells were simply marked 1, 2, 3. It is not asked that lengthy descriptions be sent, but as a rule the leading features may be indicated in some half dozen lines, and the trouble of sending them might often relieve the sender from a good deal of anxiety, and responsibility.

37. Since Assistant Surgeon De Souza joined the Department he has analysed 249 samples of water, and since he started on his tour, on the 15th March 1879, he has visited the following stations:—

1. Násik.
2. Ahmedabad.
3. Baroda.
4. Surat.
5. Poona.
6. Kirkee.
7. Manmád.
8. Purandhar.
9. Sátára.
10. Kolhápur.
11. Belgaum.
12. Vengurla.
13. Dhárwár.
14. Mhow.
15. Indore.
16. Igatpuri.
17. Mátherán.

38. The results of his analyses have been tabulated, and he gives for each sample the "*total solids*," and "*chlorine*" in grains per gallon, the "*free ammonia*," and "*albuminoid ammonia*" in parts per million, the sediment, and microscopic appearances, and the *quality*. This last he has expressed as "good" or "bad," and in 7 instances as "fair." Now these analyses are generally made for officers who possibly may not be conversant with the values of the terms used to express the results, and no better explanation can be found than that given by Mr. Hewlett in his Report of the water-supply to the shipping in Bombay Harbour, at pages 243—57 of the Annual Report of this Office for 1875. He says "water may contain animal, vegetable, or mineral matters simply suspended in it, which, when it is allowed to stand at rest in a tall vessel, will fall to the bottom, and form a sediment, or will float on the surface, or below it. Their characters are generally determined by the use of the microscope. Water also, as Wanklyn points out, is capable of absorbing, in a greater or less degree, every gas, and every vapour which is placed in contact with it. The gases usually found dissolved in it are nitrogen, oxygen, and carbonic acid; but in cases of impure waters into which either sewage, or coal gas, has found its way, sulphuretted or carburetted hydrogen may be present, the latter being not unfrequently found in stagnant pools containing much vegetable matter: but the

Total solids.

term "total solids" represents the quantity of mineral and organic ingredients dissolved in the water under examination, as determined by the accurate measurement of a given quantity of

the water, and its evaporation to dryness in a vessel of previously ascertained weight, when by reweighing the vessel, and by subtracting its weight when empty, that of the residue, or "total solids" will be learnt. The mineral substances generally sought for consist of lime, soda, and magnesia, in combination with carbonic acid, sulphuric acid, or chlorine. Other matters may of course be present such as potash, alumina, nitric, nitrous, phosphoric, or silicic acids, or, more rarely, metals such as arsenic, manganese, iron, zinc, copper, or lead. The organic matters consist of nitrogenous substances, whether of animal, or vegetable origin, which are always found in much more minute quantities than the mineral. Chemists now-a-days generally content themselves by stating the exact amount of each ingredient found in the water, instead of combining the acids with bases as used to be the practice; and formerly an attempt was made to arrive at the amount of organic matter contained in the "total solids" by their incineration, the loss resulting being ascribed to the volatile organic matter, but this practice having been found imperfect, and untrustworthy, has of late years been abandoned. Hard waters contain a much larger amount of total solids than soft water, the carbonate of lime in the former being often very large. The following is Wanklyn's table:—

	Total Solids. Grs. per gallon.
Distilled water	0·1
London—Thames Companies	18·5
„ New River	17·6
„ Kent Company	26·5
Glasgow—Loch Katrine	2·3
Manchester water-supply	4·7
Bala Lake (water)	3·2
The Rhine at Basle	11·8
Atlantic Ocean	2688·0

Wanklyn states, that if the solid residue does not exceed 30 or 40 grains per gallon there is on that account no reason for rejecting the water for domestic use. The amount of sulphuric acid in a drinking water is always a matter of great interest from a sanitary point of view, as the earthy sulphates, *i. e.*, the sulphates of lime, and magnesia, are believed to be hurtful to the consumer.

Chlorine.

Chlorine is usually present in drinking waters, and is generally in combination with sodium. Chloride of sodium, or common salt, is not in itself injurious to health, but the presence of chlorine in water is a matter of interest to Sanitary Officers because, in waters gathered from sources removed from the influence of the sea, or salt bearing strata, it generally indicates sewage contamination. Its absence however is no guarantee that the water is good, for it may be highly contaminated with vegetable matter, and be perfectly unfit for drinking from this cause. When a large quantity of chlorine is found to be present in the water we should suspect that it had been contaminated with urine, or sewage, both of which contain a large proportion of common salt. The following is Wanklyn's table:—

	Chlorine. Grs. per gallon.
Bala Lake (wales)	0·7
Ullswater (Cumberland)	0·7
Thames at Kew	0·8
Thames Companies in London	1·2
New River	1·1
Leek (Staffordshire) Work-house Well	0·5
London—Pump in Portland Place	2·2
„ „ „ Goodge Street	12·4
„ „ „ Oxford Market	33·2
Well in Windsor	6·9
Sample of sewage	9·9

He says that 5 or 10 grains per gallon will not be an absolute bar to the use of the water, but only a reason for suspicion under certain circumstances.

Free ammonia.

By "free ammonia" is meant ammonia which is dissolved in the water under report. The presence of a large quantity would indicate that the water has been recently mixed with sewage, and generally with urine, four-fifths of the organic constituents of which are stated to consist of urea, which, shortly after being voided, under-

goes fermentation, and becomes converted into carbonate of ammonia. The minute quantities of carbonate of ammonia (or free ammonia) found in water are not in themselves injurious to health. The medicinal dose of the drug for example varies from 3 to 10 grains, and this quantity is never found in a gallon of water. Its presence, like chlorine, is solely important as showing, if it exceeds recognised limits, the probable admixture with the water of recent sewage, which may have contained choleraic, typhoid, or other zymotic poisons. According to Wanklyn the water-supply of London, Manchester, Edinburgh, Chester, and Glasgow, contains less than 0·03 parts of free ammonia per million parts of water. When the proportion exceeds 0·08 parts per million it almost invariably proceeds from the fermentation of urea into carbonate of ammonia, and is a sign that the water in question is diluted sewage in a very recent condition.

Albumenoid ammonia.

By albumenoid ammonia is meant that obtained from nitrogenous organic matters which are dissolved in the water, but which have not been converted into ammonia. They may have either a vegetable, or an animal origin, and if derived from urine "are," says Wanklyn, "present in much smaller amounts than urea. They are, however, much more permanent, and survive not only the transformation of urea into carbonate of ammonia, but even the oxidation of the carbonate of ammonia into nitrates. It is such matters as these, and also permanent organic matters in the fœces which are really to be dreaded in drinking water. For them (and of course the remark applies equally to those of vegetable origin) science is now in possession of a test of extraordinary delicacy, consisting of oxidation by strongly alkaline permanganate of potash, and estimation of the amount of ammonia which is thereby generated."

The chemical processes invented by Wanklyn, though far in advance of past methods, are yet not able to differentiate between the albumenoid ammonia derived from vegetable, and that indicative of animal contamination; but by the results obtained the Reporter is able to form a pretty accurate judgment as to the origin of the albumenoid ammonia by taking into consideration the coincident amount of chlorine, and free ammonia present in the water. Wanklyn's directions are as under :—

"Much albumenoid ammonia, little free ammonia, and almost entire absence of chlorine is indicative of vegetable contamination. Such water is very injurious to health. If the albumenoid ammonia in water amounts to 0·02, or to less than 0·05 per million, the water belongs to the class of very pure waters. When the albumenoid ammonia amounts to 0·05 then the proportion of free ammonia becomes an element in the calculation, and I should be inclined to regard with some suspicion a water yielding a considerable quantity of free ammonia along with ·05 parts of albumenoid ammonia per million. Free ammonia however being absent, or very small, a water should not be condemned unless the albumenoid ammonia reaches something like 0·10 per million. Albumenoid ammonia above 0·10 per million begins to be a very suspicious sign, and over ·15 ought to condemn a water absolutely. The absence of chlorine, or the absence of more than 1 grain of chlorine per gallon is a sign that the organic impurity is of vegetable rather than of animal origin: but it would be a great mistake to allow water highly contaminated with vegetable matter to be taken for domestic use."

The following is Wanklyn's table :—

	Parts per million ammonia.	
River Thames above Hampton Court, where the Thames Companies derive their supply of water for London.	Free.	Albumenoid.
Sample I.	0·04	0·28
Do. II.	0·01	0·23
The same water as delivered in London after good filtration :—		
West Middlesex Water Company	0·01	0·07
The Grand Junction Company	0·01	0·08
Chelsea Company	0·01	0·07
The same water as delivered in London after defective filtration :—		
Southwork and Vauxhall Company	0·03	0·16
Lambeth Water Company	0·02	0·14
New River Company	0·02	0·08
Water from River Lea supplied by East London Company	0·03	0·09
Kent Water Company derived from springs (very pure)	0·01	0·02
Manchester Town water	0·01	0·06
Edinburgh „ „	0·00	0·07
Glasgow (Loch Katrine)	0·00	0·03

Samples of Water analysed by Assistant Surgeon J. A. DeSouza—Travelling Water Analyst, Sanitary Department, Bombay.

Number of Samples.	Date.	Station.	Source.	Grains per Gallon.		Parts per Million.		Sediment, &c.	Quality.
				Total solids.	Chlorine.	Free ammonia.	Albumenoid ammonia.		
1	6th Nov. 1878.	Asirgarh ...	Bungalow well	68·950	5·04	·24	·19	Scanty—Vegetable debris, Monads, Paramecia, Rotifers.	Bad.
2	Do. ...	Do. ...	Bumun ,, ...	110·250	10·85	·10	·14	Scanty—Vegetable debris, Paramecia, Rotifers.	Do.
3	Do. ...	Do. ...	Nabbub ,, ...	31·15	1·54	·008	·16	Scanty—Vegetable debris, Monads.	Fair.
4	Do. ...	Do. ...	Auddoo ,, ...	31·5	1·89	·01	·11	Do. do. Paramecia.	Good.
5	Do. ...	Do. ...	Khirnee ,, ...	31·9	2·24	.008	·12	Do. do. do.	Do.
6	Do. ...	Do. ...	Kharee ,, ...	112·350	10·08	·005	·09	Do. do. Entomostraca	Bad.
7	16th Nov.	Bombay ...	Large well with Persian wheel near Apollo Bunder and Strangers' Lines.	42·35	8·26	·048	·08	Do. do. Paramecia Entomostraca	Fair.
8	Do. ...	Do. ...	Large well with Persian wheel behind the above.	24·5	3·22	·066	·094	Scanty—Vegetable debris, Paramecia	Good.
9	Do. ...	Do. ...	Well near Cooperage	27·3	2·52	0·016	0·10	Very scanty—Vegetable debris, Diatoms.	Do.
10	Do. ...	Do. ...	Do. with Persian wheel behind Post Office.	54·95	10·78	·013	·11	Scanty—Vegetable debris, Monads, Paramecia, Rotifers.	Bad.
11	30th Nov.	Do. ...	Well at corner of Khetwadi, 6th Street.	64·40	9·52	·01	·14	Scanty—Vegetable debris, Oscillatoria, Paramecia, Diatoms, Monads.	Do.
12	9th Jan. 1879.	Neemuch ...	Well No. 301	31·85	2·59	·10	·11	Scanty—Vegetable debris, Monads, Paramecia, Rotifers.	Do.
13	28th Feb.	Ahmedabad.	Water Works Storage Reservoir.	...	6·2	·024	·07	Scanty—Vegetable debris, Monads, Paramecia.	Good.
14	Do. ...	Do. ...	Khás Bázár Reservior	...	6·2	·07	·076	Scanty—Vegetable debris, Paramecia, Rotifers.	Bad.
15	20th March	Násik ...	Godávari River: taken above Bijabai's Palace, i.e., above outfall of drains.	19·6	2·1	·01	·18	Vegetable debris, Monads, Paramecia, Rotifers.	Do.
16	Do. ..	Do. ...	Godávari River: taken opposite Ghanta Temple below out-fall of two small drains and above outfall of main drain.	20·3	2·24	·08	·27	Vegetable debris, Monads, Paramecia, Rotifers.	Do.
17	Do. ..	Do. ...	Godávari River below outfall of main drain.	23·1	3·5	·21	·40	Vegetable debris, Monads, Paramecia, Rotifers.	Do.
18	Do. ..	Do. ...	Howd Tank	18·9	1·68	·016	·19	Vegetable debris, crystals of mineral matter, Paramecia.	Do.
19	Do. ...	Do. ...	Wakree well	53·2	7·03	·032	·10	Scanty—Vegetable debris, a few Paramecia.	Do.
20	Do. ...	Do. ...	Bhandear do.	124·3	16	·08	·11	Scanty—Vegetable debris, crystals of mineral matter, Paramecia, Entomostraca, Rotifers.	Do.
21	Do. ...	Do. ..	Hale do.	73·8	10·36	·016	·15	Vegetable debris, Paramecia, Rotifers, Nematoda.	Do.
22	25th April	Ahmedabad.	River Sábarmati at City Pumping Station at 12-20 P.M.	35·7	7·28	·026	·24	Vegetable debris, Monads, Paramecia, Rotifers, dyed cotton fibres.	Do.
23	Do. ...	Do. ...	Do. at 8 P.M.	35·7	7·28	·021	·20	Vegetable debris, Monads, Paramecia, Rotifers, Vorticella, dyed cotton fibres.	Do.
24	Do. ..	Do. ...	Do. near Raikhor Gate.	35·7	7·28	·18	·22	Vegetable debris, Monads, Paramecia, Rotifers, dyed cotton fibres.	Do.
25	Do. ...	Do. ...	Do. near Ellis Bridge.	35·7	7·28	·18	·21	Vegetable debris, Monads, Paramecia, Rotifers, dyed cotton fibres.	Do.
26	Do. ..	Do. ..	Stand-pipe at Raikhor	35·7	7·28	·013	·17	Vegetable debris, Diatoms, Paramecia, Anguillulæ fluvialis, Rotifers.	Do.
27	Do. ...	Do. ...	Do. Khamosa Chukla.	35·7	7·28	·016	·17	Vegetable debris, Diatoms, Paramecia, Rotifers.	Do.
28	Do. ...	Do. ...	River Sábarmati at Shaibagh ..	34·30	6·3	·016	·13	Vegetable debris, Paramecia, Rotifers.	Fair.
29	Do. ...	Do. ...	Panch Koowa well	97·3	16·8	·03	·15	Vegetable debris, Paramecia, Rotifers.	Bad.
30	Do. ...	Do. ...	Well in compound of Lunatic Asylum.	94·85	27·02	·026	·11	Vegetable debris, Paramecia.	Do.
31	Do. ...	Do. ...	Well outside Sholápur Gate ...	35·4	5·04	·03	·13	Vegetable debris, Paramecia, Rotifers.	Do.
32	Do. ...	Do. ...	Do. Jamalpur do. ..	134·4	14·5	·03	·18	Vegetable debris, Paramecia, Entomostraca, Rotifers.	Do.
33	Do. ...	Do. ...	Do. Khanpur do. ...	179·2	45·7	·01	·13	Vegetable debris, Paramecia, Entomostraca, Rotifers.	Do.
34	Do. ...	Do. ...	Do. Astoria do. .	184·1	36·4	·01	·16	Vegetable debris, Paramecia, Rotifers.	Do.
35	15th May	Baroda ..	New well supplying European Troops.	25·9	3·36	·01	0·07	Very scanty—Vegetable debris, Paramecia.	Good.
36	Do. ...	Do. ..	Well in compound of Officers' Mess.	98·7	21	·01	·04	Do. do. crystals of Carbonate of Lime.	Do.

Samples of Water analysed by Assistant Surgeon J. A. DeSouza—Travelling Water Analyst, Sanitary Department, Bombay—continued.

Number of Samples.	Date.	Station.	Source.	Grains per Gallon.		Parts per Million.		Sediment, &c.	Quality.
				Total solids.	Chlorine.	Free ammonia.	Albumenoid ammonia.		
37	15th May 1879.	Baroda ...	Well in compound of Camp Bakery.	163·1	15·12	·01	·10	Vegetable debris, Rotifers ...	Bad.
38	Do. ...	Do. ...	Well No. 144, supplying European Troops.	30·8	2·31	·01	·06	Vegetable debris, Paramecia ...	Good.
39	Do. ...	Do. ...	Well No. 143, supplying European Troops.	31·5	2·38	·01	·07	Scanty—Vegetable debris, Paramecia.	Do.
40	22nd Do. ...	Surat ...	Well in compound of Captain Singleton's Bungalow.	110·6	43·4	·06	·10	Scanty—Vegetable debris, Paramecia.	Bad.
41	Do. ...	Do. ...	Well in compound of Mr. Bejunji Chiniwalla's Bungalow.	71·4	24·5	·07	·04	Scanty—Vegetable debris, Paramecia.	Do.
42	23rd Do. ...	Do. ...	Well in Manockji Bhaya's garden.	94·5	35	·01	·13	Vegetable debris, Monads, Paramecia.	Do.
43	Do. ...	Do. ...	Well near village of Athwah (Burjorjee Merwanjee's well).	73·5	19·6	·01	·14	Scanty—Vegetable debris, Diatoms, Monads, Paramecia, Rotifers.	Do.
44	Do. ...	Do. ...	Tápti River at high tide ...	1130	454	..	...	Copious—Vegetable debris, Monads, Diatoms.	Do.
45	Do. ...	Do. ...	Do. at low tide ...	541	259	·005	·24	Copious—Vegetable debris, Rotifers, crystals of mineral matter.	Do.
46	24th Do. ...	Do. ...	Well opposite Lines of 28th Regiment N. I. supplying Hindus and Mahomedans.	144·2	67·2	·03	·14	Diatoms, Paramecia, Confervæ, Rotifers.	Do.
47	26th Do. ...	Do. ...	Do. supplying Purwarees..	92·4	27·3	·03	·17	Scanty—Vegetable debris, Confervæ, Paramecia.	Do.
48	Do. ...	Do. ...	Do. supplying Mochees ...	116·9		·04	·15	Vegetable debris, Monads, Paramecia, Vorticella.	Do.
49	Do. ...	Do. ...	Do. supplying Maratha sepoys.	114·1	43·4	·02	·14	Vegetable debris, Paramecia, Rotifers.	Do.
50	12th June	Nagpur ...	Reservoir..	5·6	·7	·01	·12	Scanty—Vegetable debris, Paramecia, Rotifers.	Fair.
51	Do. ...	Do. ...	Stand-pipe in City	5·6	·7	·01	·11	Scanty—Vegetable debris, Paramecia, Rotifers.	Do.
52	13th Do. ...	Kurrachee .	Napier Tank (Unfiltered) ...	102·9	31·8	·01	·07	Scanty—Vegetable debris, Monads, Paramecia, Rotifers.	Bad.
53	Do. ...	Do. ...	Do. do. (Filtered)	111·3	38·85	·005	·07	Scanty—Vegetable debris, Paramecia, Rotifers.	Do.
54	15th Do. ...	Baroda ...	Well supplying 20th Regiment N. I. situated in the right front of Lines.	25·9	2·1	·01	·13	Vegetable debris, Paramecia, Rotifers.	Fair.
55	Do. ...	Do. ...	Do. situated behind the Smith's shop.	35·7	3·64	·05	·10	Scanty—Vegetable debris, Paramecia, Diatoms.	Bad.
56	17th Do. ...	Do. ...	Well on left front of Lines ...	45·5	7	·026	·11	Scanty—Vegetable debris, Paramecia, Diatoms.	Do.
57	Do. ...	Do. ...	Do. in rear, centre of Lines ...	45·20	4·06	·042	·09	Scanty—Vegetable debris, Paramecia.	Good.
58	18th Do. ...	Do. ...	Do. do. left flank	20·30	1·75	·04	·10	Scanty—Vegetable debris, Paramecia.	Do.
59	Do. ...	Do. ..	Do. do. left rear.	38·5	4·68	·01	·13	Scanty—Vegetable debris, Paramecia, Rotifers.	Fair.
60	25th Do. ..	Nagpur ...	Reservoir...	5·6	·56	·04	·11	Vegetable debris, Monads, Paramecia.	Good.
61	Do. ...	Do. ...	A standard in City	2·8	·28	·02	·09	Vegetable debris, Monads, Paramecia.	Do.
62	3rd July	Aden ...	Aqueduct...	368·2	100·10	·01	·07	Copious—Vegetable debris, Paramecia, Anguillulæ fluvialis.	Bad.
63	Do. ...	Do. ..	Huswa	471·1	175·70	·32	·08	Copious—Vegetable debris, Actinophrys Sol Entomostraca, Anguillulæ fluvialis.	Do
64	7th Do. ...	Hyderabad (Sind).	River Indus	9·45	1·15	·02	·06	Vegetable debris, Paramecia, Rotifers.	Good.
65	15th Aug.	Poona ...	Stand-pipe in Sanitary Commissioner's Office compound ...	6·3	·56	·008	·12	Copious—Vegetable debris, suspended mineral matter, Diatoms, Paramecia.	Do.
66	20th Do. ...	Do. ...	Wanorie Barracks, Tap in No. 12 Barrack.	5·6	·56	·006	·07	Scanty—Vegetable debris, suspended mineral matter.	Do.
67	Do. ...	Do. ...	Macnamara Filter in No. 12 Barrack.	7	·56	Nil.	·05	Very scanty—Vegetable debris.	Bad.
68	22nd Do. ...	Do. ...	Tap in No. 1 Barrack	5·6	·56	·0026	·08	Scanty—Vegetable debris, Diatoms.	Good.
69	Do. ...	Do. ...	Macnamara Filter in No. 1 Barrack.	7	·56	Nil.	·05	Very scanty—Vegetable debris.	Bad.
70	5th Sept.	Do. ...	Tap in No. 10 Barrack	5·6	·56	·0026	·06	Very scanty—Vegetable debris, Diatoms.	Do.
71	Do. ...	Do. ...	Macnamara Filter in No. 10 Barrack.	4·9	·56	Nil.	·04	Nil...	Do.

Samples of Water analysed by Assistant Surgeon J. A. DeSouza—Travelling Water Analyst, Sanitary Department, Bombay—continued.

Number of Samples.	Date.	Station.	Source.	Grains per Gallon.		Parts per Million.		Sediment, &c.	Quality.
				Total solids.	Chlorine.	Free ammonia.	Albumenoid ammonia.		
72	5th Sept. 1879.	Poona ...	Tap in No. 2 Barrack	5·6	·56	·0026	·05	Very scanty—Vegetable debris, Paramecia.	Good.
73	Do. ...	Do. ...	Macnamara Filter in No. 2 Barrack.	4·9	·56	Nil.	·04	Nil...	Do.
74	8th Oct.	Do. ...	Wanorie Hospital, Macnamara Filter in No. 2 Ward.	4·9	·56	·002	·04	Nil...	Do.
75	Do. ...	Do. ...	Do. in No. 3 Ward ...	4·8	·56	·003	·05	Nil...	Do.
76	9th Oct.	Do. ...	Tap in compound	5·6	·56	·005	·068	Very scanty—Vegetable debris.	Do.
77	30th Aug.	Do. ...	Ghorepoorie Barracks Tap, in No. 7 Barrack.	6·3	·56	·021	·06	Copious—Vegetable debris, Diatoms, Paramecia.	Do.
78	Do. ...	Do. ...	Macnamara Filter in No. 7 Barrack.	9·1	·56	·026	·08	Scanty—Vegetable debris, Diatoms.	Bad.
79	1st Sept.	Do. ...	Tap in No. 1 Barrack.	6·3	·56	·026	·08	Copious—Vegetable debris, suspended mineral matter, Paramecia.	Do.
80	Do. ...	Do. ...	Macnamara Filter in No. 1 Barrack.	4·9	·56	·04	·08	Very scanty—Vegetable debris, Paramecia.	Do.
81	Do. ...	Do. ...	Tap in No. 2 Barrack	6·3	·56	·01	·06	Very scanty—Vegetable debris, suspended mineral matter.	Do.
82	Do. ...	Do. ...	Macnamara filter in No. 2 Barrack.	4·9	·56	Nil.	·06	Nil...	Do.
83	8th Oct.	Do. ...	Ghorepoorie Hospital, Macnamara Filter in Room No. 140.	4·2	·56	Nil.	·05	Nil...	Do.
84	Do. ...	Do. ...	Do. in Room No. 146.	4·9	·56	Nil.	·05	Nil...	Do.
85	9th Do. ...	Do. ...	Tap in compound	5·6	·56	·008	·10	Vegetable debris, suspended mineral matter.	Do.
86	17th Do. ...	Do. ...	Tank supplying 4th Rifles ...	5·6	·56	·005	·09	Scanty—Vegetable debris, Monads, Paramecia.	Do.
87	20th Do. ...	Do. ...	Do. do. Sepoys (Hindus). 11th Regiment N. I.	5·6	·56	·04	·11	Vegetable debris, Monads, Paramecia, Rotifers.	Do.
88	Do. ...	Do. ...	Do. supplying Mochees, 11th Regiment N. I.	5·6	·56	·01	·11	Vegetable debris, Monads, Paramecia, Rotifers.	Do.
89	21st Do. ...	Do. ...	Tank supplying Parwarees, 11th Regiment N. I.	5·6	·56	·06	·16	Copious—Vegetable debris, Diatoms, Monads, Paramecia, Rotifers.	Do.
90	Do. ...	Do. ...	Tap supplying above Tanks ...	5·6	·56	·01	·10	Scanty—Vegetable debris, Monads, Paramecia.	Good.
91	23rd Do. ...	Do. ...	Tank supplying 18th Regiment N. I.	5·6	·56	·008	·08	Scanty—Vegetable debris, Monads.	Do.
92	Do. ...	Do. ...	Tap supplying Hospital of 4th Rifles N. I.	5·6	·56	·005	·07	Scanty—Vegetable debris, Monads.	Do.
93	Do. ...	Do. ...	Do. 18th Regiment N. I. ...	5·6	·56	·005	·07	Scanty—Vegetable debris, Monads.	Do.
94	Do. ...	Do. ...	Do. 11th Regiment N. I. ...	5·6	·56	·005	·07	Scanty—Vegetable debris, Monads.	Do.
95	7th Nov.	Yerrowda (Poona.)	Tank inside Jail walls	5·6	·56	·013	·11	Vegetable debris, Paramecia, Rotifers.	Bad.
96	Do. ...	Do. ...	Stand-pipe inside do. ...	5·6	·56	·008	·07	Vegetable debris, Paramecia, Monads.	Good.
97	Do. ...	Do. ...	Tank outside Jail walls	5·6	·56	·008	·08	Vegetable debris, Paramecia, Monads.	Do.
98	8th Do. ...	Do. ...	Well inside City Jail	27·3	1·4	·016	·07	Copious—Vegetable debris, Monads, Paramecia.	Do.
99	Do. ...	Do. ...	Tank in yard of City Jail ...	27·3	1·4	·016	·07	Copious—Vegetable debris, Monads, Paramecia.	Do.
100	12th Do. ...	New Jhansil (Poona.)	Do. for Parwarees of Sappers and Miners	5·6	·56	·005	·12	Vegetable debris, Monads, Paramecia.	Do.
101	Do. ...	Do. ...	Do. for Mochees	5·6	·56	·008	·11	Vegetable debris, Monads, Paramecia.	Do.
102	Do. ...	Do. ...	Do. for Hindus	5·6	·56	·008	·11	Scanty—Vegetable debris, Monads, Paramecia.	Do.
103	Do. ...	Kirkee ...	Artillery and Infantry Barracks, Macnamara Filter in No. 206 Bath-room, Female Hospital.	10	·56	Nil.	·07	Nil...	Do.
104	Do. ...	Do. ...	Filter in No. 29 Bath-room of Block No. 4, Artillery Barracks	9·8	·56	Nil.	·10	Nil...	Do.
105	Do. ...	Do. ...	Macnamara Filter in No. 188, Lavatory of Hospital.	9·8	·56	Nil.	·09	Nil...	Do.
106	10th Do. ...	Do. ...	Do. in a Bath-room of Infantry Barracks.	9·5	·56	Nil.	·09	Nil...	Do.
107	Do. ...	Do. ...	Do. in Room No. 29, Artillery Barracks.	9·8	·56	Nil.	·09	Nil...	Do.
108	Do. ...	Do. ...	Tap in Bath-room No. 206 of Female Hospital.	11·2	·56	·05	·14	Copious—Vegetable debris, Paramecia.	Fair.
109	12th Do. ...	Nagpur ...	Reservoir	7	·21	·05	·07	Vegetable debris, Monads, Paramecia.	Good.

Samples of Water analysed by Assistant Surgeon J. A. DeSouza—Travelling Water Analyst, Sanitary Department, Bombay—continued.

Number of Samples.	Date.	Station.	Source.	Grains per Gallon.		Parts per Million.		Sediment, &c.	Quality.
				Total solids.	Chlorine.	Free ammonia.	Albumenoid ammonia.		
110	12th Nov. 1879.	Nagpur ...	Standard in City	6·3	·21	·01	·07	Vegetable debris, Monads, Paramecia.	Good.
111	27th Do. ...	Manmád ...	Well marked No. I on plan ...	30·8	1·5	·02	·09	Very scanty—Vegetable debris, Monads.	Do.
112	Do. ...	Do. ...	Do. do. „ II do. ...	31·5	1·98	0·008	·09	Scanty—Vegetable debris, Monads, Paramecia.	Do.
113	Do. ...	Do. ...	Do. shown in sketch in Site No. 2.	25·2	1·05	·02	·09	Scanty—Vegetable debris, Monads.	Do.
114	Do. ...	Do. ...	Do. marked No. 4 in sketch...	33·8	1·55	·04	·28	Copious—Vegetable debris, Diatoms, Paramecia.	Bad.
115	28th Do. ...	Do. ...	Do. in Compound of Cotton Press Factory.	34·3	4·2	·03	·10	Very scanty—Vegetable debris, crystals of mineral matter.	Good.
116	Do. ...	Do. ...	Well in Compound of Jamsetji Adurji.	30·1	3·1	·03	·09	Very scanty—Vegetable debris, Paramecia.	Do.
117	Do. ...	Do. ...	Paghna River	25·9	2·5	Nil.	·12	Vegetable debris, Paramecia, Rotifers.	Bad.
118	Do. ...	Do. ...	Ramgoolnee River	21·2	1·98	·01	·11	Very scanty—Vegetable debris, crystals of mineral matter.	Good.
119	Do. ...	Do. ...	Railway well	25	1·4	·008	·11	Very scanty—Vegetable debris, Paramecia.	Do.
120	23rd Nov. ...	Purandhar.	No. I, Drinking well	7·7	·63	·01	·08	Very scanty—Vegetable debris, Monads, Paramecia.	Do.
121	Do. ...	Do. ...	Do. II do.	7·7	·56	·01	·09	Very scanty—Vegetable debris, Monads, Paramecia.	Do.
122	Do. ...	Do. ...	Macnamara Filter in Library ...	12·6	1·05	·005	·05	Nil...	Do.
123	24th Do. ..	Do. ...	Do. do. in No. 3 Barrack.	12·6	1·05	·005	·05	Do.	Do.
124	Do. ...	Do. ...	Well No. 3 used for cooking purposes.	14	1·56	·01	·10	Scanty—Vegetable debris, Monads, Paramecia.	Do.
125	25th Do. ...	Do. ...	Macnamara Filter, No. 1 Barrack	13·5	1·15	·01	·13	Scanty—Vegetable debris, Paramecia.	Bad.
126	Do. ...	Do. ...	Do. do. do. 2 do. ...	11	1	Nil	·06	Nil...	Good.
127	Do. ...	Do. ...	No. 4, Chatty Filter	14	1·56	·02	·11	Vegetable debris, Monads, Paramecia.	Bad.
128	Do. ...	Do. ...	Quarter-Master Serjeant's Chatty Filter.	14	1·56	·02	·12	Vegetable debris, Monads, Paramecia, Rotifers.	Do.
129	26th Do. ...	Do. ..	No. 2 Tank in Fort on top of Hill.	14	1·12	·06	·80	Copious—Vegetable debris, Paramecia, Rotifers.	Do.
130	Do. ...	Do. ...	Do. 3 Well in do. do. ...	7	·49	·03	·18	Scanty—Vegetable debris, Monads, Paramecia.	Do.
131	Do. ...	Do. ...	Do. 1 Tank do. do. ...	16·8	·91	·04	·74	Vegetable debris, Paramecia, Rotifers, Entomostraca.	Do.
132	Do. ...	Do. ...	Do. 4 Well do. do. ...	8·4	·49	·01	·11	Very scanty—Vegetable debris, Monads.	Good.
133	27th Do. ...	Do. ...	Sanee's well	35·9	1·26	·48	·52	Vegetable debris, oil Globules, Rotifers, Monads, Diatoms, Entomostraca.	Bad.
134	Do. ...	Do. ...	Macnamara Filter in Hospital ..	5	·56	Nil.	·04	Nil...	Good.
135	9th Dec. ...	Sátára ...	Well No. 1 in Commissariat Compound supplying Native Troops.	30·8	4·2	·01	·09	Vegetable debris, Diatoms, Entomostraca, Paramecia.	Do.
136	Do. ...	Do. ...	Well No. 2 in front of Quarter Guard supplying Native Troops.	29·4	2·8	·01	·08	Vegetable debris, Monads, Diatoms.	Do.
137	Do. ...	Do. ..	Well No. 3 (Daruwalla's well)...	31·5	2·4	·008	·08	Very scanty—Vegetable debris, Monads, crystals of mineral matter.	Do.
138	Do. ...	Do. ...	Spring in front of Native Infantry Hospital.	29·4	1·89	·0026	0·07	Very scanty—Crystals of mineral matter, Entomostraca.	Do.
139	10th Do. ...	Do. ...	Government well on Máhuli Road.	32	2·73	·02	·11	Scanty—Vegetable debris, Monads, Diatoms.	Do.
140	Do. ...	Do. ...	Macnamara Filter in Hospital...	30·8	2·73	·02	·005	Nil...	Do.
141	Do. ...	Do. ...	Do. do. in No. 1 Patcherry...	30·8	2·73	·002	·05	Do.	Do.
142	Do. ..	Do. ...	Do. do No. 16 Barrack.	31·5	2·73	·01	·08	Scanty—Vegetable debris ...	Bad.
143	11th Do. ...	Do. ...	Mactier's well	27·3	1·19	·01	·07	Scanty—Vegetable debris, crystals of mineral matter.	Good.
144	Do. ...	Do. ...	Tank supplying Civil Hospital (Yavateshwar water).	12·6	·9	·02	·24	Copious—Vegetable debris, Paramecia, Rotifers.	Bad.
145	12th Do. ...	Do. ...	Stand-pipe in City	12·6	·9	·01	·07	Vegetable debris, crystals of mineral matter.	Good.
146	Do. ...	Do. ...	Do. supplying Jail ...	12·6	·9	·02	·12	Scanty—Vegetable debris, Paramecia, Rotifers.	Bad.
147	Do. ...	Do. ..	Large tank inside Jail	26·6	2·03	·04	·16	Copious—Vegetable debris, Diatoms, Paramecia, Rotifers.	Do.
148	18th Do. ...	Kalhápur ...	Well No. 9	16·1	1·4	·08	·09	Scanty—Vegetable debris, Paramecia.	Good.
149	Do. ...	Do. ...	Do. „ 34	51·8	7·84	·01	·11	Scanty—Vegetable debris, Paramecia.	Bad.

Samples of Water analysed by Assistant Surgeon J. A. DeSouza—Travelling Water Analyst, Sanitary Department, Bombay—continued.

Number of Samples.	Date.	Station.	Source.	Grains per Gallon.		Parts per Million.		Sediment, &c.	Quality.
				Total solids.	Chlorine.	Free ammonia.	Albuminoid ammonia.		
150	18th Dec. 1879.	Kolhápur ...	Well No. 10 used by Maráthas.	44·8	6·09	·008	·08	Scanty—Vegetable debris ...	Bad.
151	Do. ...	Do. ...	Mhár well...	15·4	1·6	·008	·10	Scanty—Vegetable debris ...	Good.
152	19th Do. ...	Do. ...	Modikhana well	16·1	1·6	·01	·12	Scanty—Vegetable debris, Rotifers.	Bad.
153	Do. ...	Do. ...	Marutee's well	22·4	2·8	·01	·11	Scanty—Vegetable debris, Paramecia.	Good.
154	20th Do. ...	Do. ...	Well No. 1 supplying Kolhápur Infantry.	19·6	1·75	·008	·11	Very scanty—Vegetable debris.	Do.
155	Do. ...	Do. ...	Runkala Tank	9·1	·91	·01	·39	Copious—Vegetable debris—Monads, Paramecia, Rotifers.	Bad.
156	Do. ...	Do. ...	Khatyani Tank	17·5	1·05	·01	·11	Very scanty—Vegetable debris, Diatoms.	Good.
157	19th Jan. 1880.	Vengurla ...	Hospital well	5·6	1·47	·005	·08	Scanty—Vegetable debris, a few Monads.	Do.
158	Do. ..	Do. ...	Well in Compound of Mr. Crawford.	4·9	·77	·005	·08	Very scanty—Vegetable debris, Monads.	Do.
159	20th Do. ...	Do. ...	Well in Police Lines	4·9	1·26	·05	·09	Vegetable debris, Monads, Paramecia, Rotifers.	Bad.
160	Do. ...	Do. ..	Do. do. Bázár	6·3	1·61	·03	·08	Vegetable debris, Monads, Paramecia, Rotifers.	Do.
161	21st Do. ...	Do. ...	Do. Compound of Travellers' Bungalow.	4·9	·84	·05	·09	Copious—Vegetable debris, Paramecia.	Fair.
162	Do. ...	Do. ...	Well inside Fort	9·1	2·24	·005	·09	Scanty—Vegetable debris, Monads.	Good.
163	22nd Do. ...	Do. ...	Do. outside Fort	17·5	2·6	·04	·11	Scanty—Vegetable debris, Paramecia, Rotifers.	Bad.
164	Do. ...	Do. ...	Stand-pipe in Town	5·6	1·05	·05	·35	Copious—Vegetable debris, Diatoms, Confervæ, Paramecia, Rotifers.	Do.
165	Do. ...	Do. ...	Tank supplying Town (Narayan Tank).	5·6	1·05	·02	·33	Copious—Vegetable debris, Diatoms, Confervæ, Paramecia, Rotifers.	Do.
166	23th Do. ...	Belgaum ...	Eshwarappa Dulap's well in Mangwar Gulley.	23	4·27	·01	·13	Scanty—Vegetable debris, Paramecia, Rotifers.	Do.
167	Do. ...	Do. ...	Bavanidass Bawa's well (Kapileshwar Gulley).	30	5·6	·008	·10	Scanty—Vegetable debris, Monads, Paramecia.	Good.
168	Do. ...	Do. ...	Balappabin Nagappa well (Kotawal Gulley).	33·6	5·3	·04	·09	Scanty—Vegetable debris, Vorticella, Paramecia, Entomostraca.	Fair.
169	Do. ...	Do. ...	Municipal Office well	37	6·3	·10	·11	Copious—Vegetable debris, Paramecia, Rotifers.	Bad.
170	29th Do. ...	Do. ..	Chavatwada well	22·4	2·8	·08	·13	Vegetable debris, Paramecia, Vorticella.	Fair.
171	Do. ...	Do. ...	Khanjeerwala Municipal well ...	44·8	7	·02	·14	Vegetable debris, Paramecia ...	Do.
172	Do. ...	Do. ...	Mochee Gulley well	75·6	12·1	·06	·13	Vegetable debris, Paramecia, Vorticella.	Bad.
173	Do. ...	Do. ...	Kelkarbaug well	10·5	1·5	·06	·13	Copious—Vegetable debris, Paramecia, Rotifers.	Do.
174	30th Do. ...	Do. ...	Well supplying Jail	11·2	1·3	·02	·09	Scanty—Vegetable debris, Paramecia.	Good.
175	Do. ...	Do. ...	Reservoir in Jail	11·2	1·3	·09	·13	Scanty—Vegetable debris, Paramecia.	Do.
176	Do. ...	Do. ...	Well P. B. No. 108 supplying Native Troops.	11·2	1·82	·04	·12	Copious—Vegetable debris, Paramecia, Rotifers.	Bad.
177	Do. ...	Do. ...	Do. No. 10 supplying Native Troops.	9·1	1·47	·08	·09	Copious—Vegetable debris, Paramecia, Rotifers.	Do.
178	Do. ..	Do. ...	Well No. 112 supplying Native Troops.	16·8	2·1	·04	·09	Copious—Vegetable debris, Paramecia.	Good.
179	Do. ...	Do. ...	Well supplying Native Troops (Mochees).	14·7	2·03	·05	·11	Copious—Paramecia, Rotifers .	Bad.
180	2nd Feb. ...	Do. ...	Well No. 1 supplying European Troops (83rd Regiment).	17·5	1·68	·01	·09	Scanty—Vegetable debris, Paramecia.	Good.
181	Do. ...	Do. ...	Macnamara Filter	12·6	1·66	·004	·04	Nil..	Do.
182	Do. ...	Do. ...	Do. do. No. 1 Hospital Ward.	16·8	1·75	·03	·04	Very scanty—Vegetable debris, Paramecia.	Bad.
183	Do. ...	Do. ...	Do. do. No. 2 Hospital Ward.	13·3	1·64	·002	.05	Nil...	Good.
184	4th Do. ...	Do. ...	Macnamara Filter, E. Company.	18·2	2·4	·02	·11	Very scanty—Vegetable debris, Paramecia.	Bad.
185	Do. ...	Do. ...	Do. do. C. Company.	13·3	1·68	·005	·06	Nil...	Good.
186	Do. ...	Do. ...	Water from Chatty used by C. Company.	13·3	1·68	·02	·09	Very scanty—Vegetable debris, Paramecia.	Bad.
187	Do. ...	Do. ...	Do. do. E. Company.	18·2	2·4	·02	·11	Scanty—Vegetable debris, Paramecia.	Do.
188	Do. ...	Do. ...	Patcherry Filter, No. 1... ..	17·5	1·68	·02	·09	Scanty—Vegetable debris, Paramecia.	Do.
189	Do. ...	Do. ...	Do. do. No. 2... ...	17·5	1·68	·04	·06	Scanty—Vegetable debris ...	Do.

Samples of Water analysed by Assistant Surgeon J. A. DeSouza—Travelling Water Analyst, Sanitary Department, Bombay—continued.

Number of Samples.	Date.	Station.	Source.	Grains per Gallon.		Parts per Million.		Sediment, &c.	Quality.
				Total solids.	Chlorine.	Free ammonia.	Albuminoid ammonia.		
190	4th Feb. 1880.	Belgaum ...	Water from chatty used in Patcherry.	17·5	1·68	·04	·11	Vegetable debris—Paramecia, Vorticella.	Bad.
191	Do. ..	Do. ...	Macnamara Filter, B Company.	15·4	1·4	·002	·04	Nil...	Good.
192	Do. ..	Do. ...	Well supplying Horses, Artillery, B-2nd Brigade.	8·4	·91	·02	·15	Vegetable debris—Paramecia, Rotifers.	Bad.
193	5th Do. ...	Do. ..	Well supplying men, Artillery B-2nd Brigade.	5·6	·84	·02	·09	Vegetable debris—Paramecia...	Good.
194	Do. ...	Do. ...	Macnamara Filter in Artillery Patcherry.	5·6	·84	·02	·10	Very scanty—Vegetable debris.	Bad.
195	Do. ...	Do. ...	Well supplying D Company in Fort.	37·8	4·4	·01	·08	Vegetable debris—Paramecia, Entomostraca.	Good.
196	Do. ..	Do. ...	Macnamara Filter, D Company in Fort.	32·2	4·4	·002	·04	Nil...	Do.
197	Do. ...	Do. ...	Civil Hospital well	18·2	1·3	·01	·09	Scanty—Vegetable debris, Paramecia.	Do.
198	8th Do. ...	Do. ...	Baragargara well	21·7	3·3	·02	·08	Vegetable debris—Paramecia ..	Do.
199	Do. ...	Do. ...	Sirdár High School well ...	16·8	1·4	·02	·08	Scanty—Vegetable debris, Paramecia and Entromostraca.	Do.
200	Do. ...	Do. ...	Well behind Protestant Church.	9·1	·9	·02	·09	Scanty—Vegetable debris, Paramecia.	Do.
201	16th Do. ...	Dhárwár ...	Tank in Fort	9·8	1·12	·02	·36	Vegetable debris, Paramecia, Monads, Rotifers.	Bad.
202	Do. ...	Do. ...	Alkerry Tank	9·8	1·4	·05	·47	Copious—Vegetable debris, Paramecia, Monads, Rotifers	Do.
203	17th Do. ...	Do. ...	Well near above Tank used by Brahmins.	7	1·47	·02	·13	Vegetable debris, Paramecia ...	Good.
204	Do. ...	Do. ...	Do. do. by Mahráttas ...	18·2	7·91	·04	·12	Very scanty—Vegetable debris, no Infusoria.	Do.
205	Do. ...	Do. ...	Civil Hospital well	31·2	3·5	·01	·08	Vegetable debris, Paramecia ...	Do.
206	19th Do. ...	Do. ...	Noochambli well	58·8	12·8	·09	·62	Vegetable debris, Paramecia, Rotifers.	Bad.
207	Do. ...	Do. ..	Lal Tallao	12·6	1·75	·14	·94	Copious—Vegetable debris, Paramecia, Rotifers.	Do.
208	20th Do. ...	Do. ...	Guttaria do.	36·4	·84	·05	·50	Copious—Vegetable debris, Paramecia.	Do.
209	Do. ...	Do. ...	Kupatria do.	13·3	1·3	·13	·74	Copious—Vegetable debris, Paramecia, Rotifers.	Do.
210	Do. ...	Do. ..	Well in compound of Training College.	21	2·24	·02	·11	Vegetable debris, Paramecia ...	Good.
211	22nd Do. ...	Do. ...	Well insied Jail walls	34·3	4·9	·01	·09	Vegetable debris, Paramecia ...	Do.
212	24th Do. ...	Do. ...	Well in front of Native Infantry Hospital.	39·9	7·5	·01	·09	Very scanty—Vegetable debris, Entomostraca.	Do.
213	Do. ..	Do. ...	Well near Officers' Mess. ...	28·9	5·6	·02	·09	Very scanty—Vegetable debris, no Infusoria.	Do.
214	26th Do. ...	Do. ...	Do. in Jail Garden	51·1	10·57	·02	·10	Vegetable debris, crystals of mineral matter.	Bad.
215	Do. ...	Do. ...	Do. near Lake	26·2	4·1	·01	·08	Copious—Vegetable debris, Paramecia.	Good.
216	28th Do. ...	Do. ...	Do. do. Infantry Bázár ...	59·4	17·7	·005	·07	Vegetable debris, no Infusoria.	Bad.
217	Do. ...	Do. ...	Do. do. Dr. Bell's bungalow.	29·3	4·8	·01	·06	Vegetable debris, Paramecia ...	Good.
218	21st March ...	Mhow ..	Well No. 14	34·3	2·8	·034	·13	Scanty—Vegetable debris, Paramecia, Rotifers.	Bad.
219	Do. ...	Do. ...	Do. ,, 15	28	2·24	·01	·09	Very scanty—Vegetable debris, crystals of mineral matter, no Infusoria.	Good.
220	22nd Do. ...	Do. ...	Do. ,, 11	61·6	5·25	·01	·10	Scanty—Vegetable debris, Monads, Paramecia.	Bad.
221	23rd Do. ...	Do. ...	Do. ,, 9	32·2	3·85	·02	·11	Scanty—Vegetable debris, Paramecia.	Good.
222	24th Do. ...	Do. ...	Macnamara Filter in Lancers' Hospital, Ward No. 107.	29·4	2·6	·002	·07	Nil...	Do.
223	Do. ...	Do. ..	Do. do. Lancers' Barrack, Room No. 1, upstairs.	33·6	2·6	·008	·07	Very scanty—Vegetable debris.	Fair.
224	Do. ...	Do. ...	Do. do. downstairs.	32·3	2·5	·005	·07	Very scanty—Vegetable debris.	Do.
225	25th Do. ...	Do. ..	Canteen Filter	34·2	2·7	·008	·09	Scanty—Vegetable debris ...	Bad.
226	26th Do. ...	Do. ..	Sergeants' Mess Filter (chatty).	34·3	2·8	·09	·26	Scanty—Vegetable debris, Monads, Paramecia.	Do.
227	Do. ...	Do. ...	Guard-room Filter	34·3	2·8	·05	·09	Very scanty—Vegetable debris, Paramecia	Do.
228	26th Do. ...	Do. ...	Block, No. 2 Filter	34	2·7	·008	·08	Very scanty—Vegetable debris, Paramecia.	Do.
229	30th Do. ...	Do. ...	Patcherry, No. 1 do.	31	2·3	·001	·03	Nil...	Good.
230	Do. ...	Do. ...	Female Hospital do.	30	2	Nil.	·02	Do....	Do.
231	Do. ...	Do. ...	Well in compound of Lancers' Hospital.	33·6	2·3	·005	·13	Scanty—Vegetable debris, Paramecia, Vorticella.	Fair.
232	Do. ...	Do. ...	Well No. 28 (Artillery)	51·1	4·76	·08	·10	Vegetable debris, Paramecia, Vorticella, Rotifers.	Bad.

Samples of Water analysed by Assistant Surgeon J. A. DeSouza—Travelling Water Analyst, Sanitary Department, Bombay—continued.

Number of Samples.	Date.	Station.	Source.	Grains per Gallon.		Parts per Million.		Sediment, &c.	Quality.
				Total solids.	Chlorine.	Free ammonia.	Albumenoid ammonia.		
233	1st April 1880	Mhow ...	Artillery Hospital Filter ...	48·03	4	·005	·007	Very scanty—Vegetable debris.	Good.
234	Do. ...	Do. ...	Do. Block, Filter No. 1 ...	48·3	4	·005	·007	Nil	Do.
235	2nd Do. ...	Do. ...	29th Regiment, Hospital Filter.	49	40·2	·003	·008	Very scanty—Vegetable debris.	Do.
236	Do. ...	Do. ...	Block, Filter No. 3	18	1	Nil.	·004	Nil...	Do.
237	4th Do. ...	Do. ...	Do. do. ,, 1	17	·98	Nil.	·004	Do.	Do.
238	7th Do. ...	Indore ...	Cantonment well	30·8	1·54	·008	·13	Scanty—Vegetable debris, Paramecia, Rotifers.	Bad.
239	8th Do. ...	Do. ...	Barrack Room Filter	29	1·54	·008	·12	Very scanty—Vegetable, Paramecia	Do.
240	9th Do. ...	Do. ...	Hospital Filter	28	1·54	·08	·09	Very scanty—Vegetable debris .	Do.
241	Do. ...	Do. ...	Well in compound of Opium Godown.	31·5	2·3	·008	·11	Very scanty—Vegetable debris, Paramecia	Good.
242	16th Do. ...	Igatpuri ...	Stand-pipe	5·6	·56	·005	·17	Scanty—Vegetable debris, Paramecia.	Fair.
243	17th Do. ...	Do. ...	Well No. I, near Mutton Market.	14	1·82	·06	·15	Scanty—Vegetable debris, Paramecia, Rotifers.	Bad.
244	18th Do. ...	Do. ...	Do. ,, 2 (Chirunji's)... ...	24·8	3·38	·32	·25	Copious—Vegetable debris, Paramecia, Rotifers	Do.
245	19th Do. ...	Do. ...	Do. ,, 3 (Kalyan Sewjee's)...	20·6	2·4	·08	·21	Scanty—Vegetable debris, Paramecia, Monads, Rotifers.	Do.
246	3rd May ...	Mátheran...	Old Tank	2·8	·98	·008	·19	Copious—Vegetable debris, Paramecia, Monads, Rotifers.	Do.
247	4th Do. ...	Do. ...	Mallet spring	9·8	·7	·005	·05	Very scanty—Vegetable debris.	Good.
248	Do. ...	Do. ...	Harrison's spring	8·4	·84	·09	·127	Copious—Vegetable debris, Paramecia, Monads, Rotifers.	Bad.
249	5th Do. ...	Do. ...	Simpson's Tank...	2·8	·7	·01	·15	Very scanty—Vegetable debris, Paramecia	Fair.

39. Although all the analyses are important, it would entail too much repetition to speak of each one separately, but there are some which may be specially noticed—

Nos. 1 *to* 6, *Wells at Asirgarh.*—Two out of the six are decidedly bad, containing more mineral and organic impurities than are admissible in fair potable water. As Asirgarh is a Hill Fort it can ill afford to have two of its wells in such a condition as to render their yield unfit for drinking.

Nos. 7 *to* 10, *Wells in Bombay.*—The pollution in these is preventable by good pavements and catch water drains, and by forbidding cattle washing at or near them. They are Government wells, and, at any time, they might have to supply troops.

Nos. 15, 16, 17, *River Godávari* at Násik.—The town of Násik is drained into the river, and these analyses were made with a view of determining the extent of the sewage pollution. They show that the water *below* the outfall is twice as impure as that *above* it, and the obvious remedy is an improved outfall and better river conservancy. There are really 3 separate outfalls: the first empties itself near the Suttee Gate into a pit in the bed of the river, about 150 feet from the stream; the second discharges into the stream, and the third, which is the main drain, empties itself into a sort of settling tank in the bed of the river. From this tank the more liquid sewage is strained through a perforated iron plate and conveyed by iron pipes across the stream to the opposite side, where it is discharged into a channel cut in the bed of the river, and parallel to the stream. The distance between the channel and the stream is 52 feet, but necessarily there must be free communication between the two in the underground flow; a grass market on the dry bed is another source of impurity; and last, but not least, is the fact that the Godávari is one of the sacred rivers of India, and attracts pilgrims from all parts, so there is constant and renewed pollution in addition to that from the outfalls; and yet the water is largely used for drinking.

Nos. 18 *to* 21, *Wells at Násik.*—Three out of the four are bad. No. 20 is from a well about 14 feet from the street drain, and about 24 feet from a latrine on a higher level.

Nos. 22 *to* 28, *River Súbarmati at Ahmedabad*—All bad. These analyses were made to disprove what should never have been advanced, *viz.*, that the water at the pumping station *down-stream*, and *below* the city, was more pure than that *up-stream* at the Shah-i-Bagh. There is one pumping station up-stream for the Railway, and another down-stream near the Khanpur Gate for the city. At the latter the water is pumped up into a settling tank, and is filtered, or supposed to be filtered, before distribution. The table shows that samples Nos. 26 and 27 which were filtered are nearly as bad as the unfiltered. The analyses of the well waters show that, with one exception—sample No 31—they are all bad.

Nos. 40 *to* 43, *from wells at Surat.*—Are all bad.

The water-supply to the troops at Poona is from the Khadakvásla Canal, and the quality is excellent. That for the Wanourie Barracks is first passed through filtering beds, and it contains less "total solids" than that in the Ghorpoorie Barracks, which goes direct. In both barracks there are the Macnamara filters, and some of the results show that these require looking after. The same water is supplied to the Native Troops, and it is a significant fact that sample No. 86, from a reservoir with stop cocks, is good, while Nos. 87, 88 and 89, from dipping wells, are bad. Without a doubt the contamination here is owing to the dipping with dirty vessels. These analyses show the great need of preserving wells by pavements and catch-water drains and covers, and they also show the polluting effects of an impure sub-soil.

Native Infantry Lines.

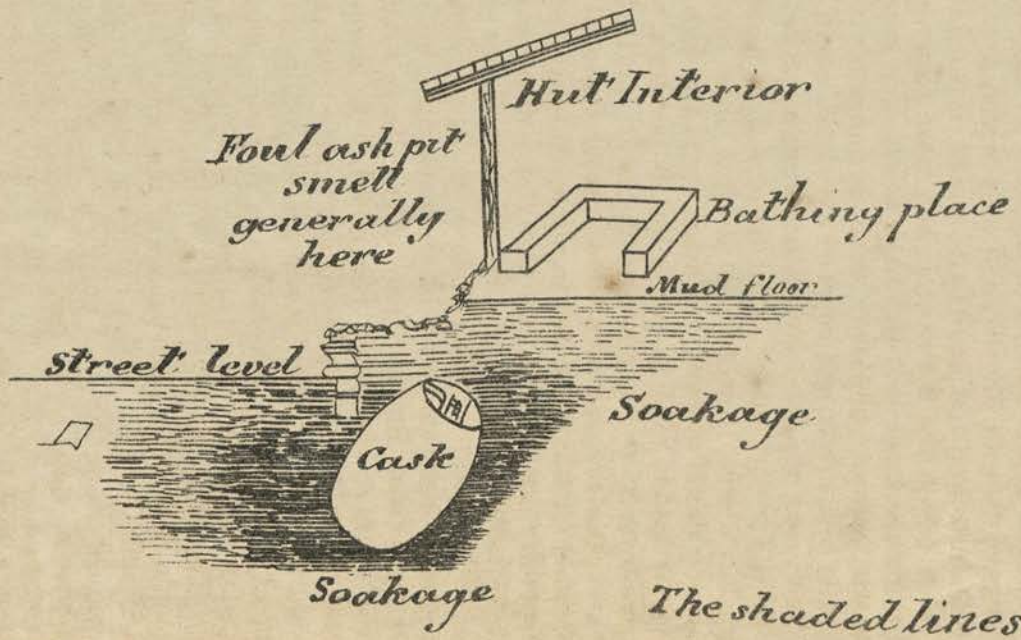
40. In the memorandum of the Army Sanitary Commission on the Medical and Sanitary Report of the Native Army of Bombay for 1877 it is pointed out, in para. 13, that the loss of efficiency from "fevers" is still very great, and is not to be measured by the comparatively low death-rate. These fevers at many stations are connected directly with materials, construction, and drainage arrangements of Lines; and it is by dealing with such fever causes that future advance in health and efficiency of Native Troops is to be looked for. Referring to my being *now* empowered to examine all plans for new Lines, it is suggested that my functions might be beneficially extended to inspecting, and reporting on existing Lines with a view to their improvement; and it is added that in this way better sanitary knowledge would be available, not only for preventing the recurrence of mistakes similar to those dealt with, but for suggesting the least costly means of remedying those which exist.

41. I would observe that the examination of plans has always been one of the duties of the Sanitary Commissioner, but obviously it was a duty that was more or less dependant upon the pleasure of the Public Works Department; for the sending plans for examination was their duty, and it had fallen into such desuetude that I had to bring the matter to the notice of Government; and in 1876 fresh orders were published, detailing the course of procedure, and defining the relations of the Sanitary Commissioner to the various Departments.

42. As regards the inspection of existing Lines I was able during my recent tour to see those in the Southern Deccan, and there are very few that I have not known of old; so I am in a position to speak as to general defects and general conditions. Original alignments must have been taken up on purely Military grounds uninfluenced by outside considerations, and having once been assigned the sepoys built their own Lines. Those were not the days of cubic space and superficial area, and they ignored drainage and ventilation. In fact, they built after the fashion of the houses in their native villages, the only difference being that there was uniformity. There might or might not be a plinth, but there were the same low walls and doors, and the same absence of window, a fire-place all over the floor and a bathing place in a corner discharging anywhere through a hole in the wall. With huts back to back, and the front verandah enclosed, ventilation was out of the question, and there was little more than

darkness visible. Such were the old Native Infantry Lines, and, with rare exceptions, such they are now: the best of them cannot be said to be good, but some are worse than others, and in their conservancy arrangements they have special disadvantages; for whilst their numbers exceed those in European Lines, a smaller establishment is meted out to them. As all the Lines are much the same in their general arrangements, there is no necessity to go through them *seriatim;* more especially as Mr. Hewlett has dealt with them so exhaustively in his reports on the Cantonments inspected by him in 1875-76. His description of the Lines of the four Native Regiments at Poona may be accepted as applying more or less to all others throughout the Presidency, except that possibly the conditions there, are somewhat better than at more remote and less favoured stations. He speaks of mud walls 5 feet high, of one by measurement 3 feet 7 inches, and of doors four-and-a-half feet; but apart from all faults of construction with bad materials, the great and glaring want is the want of drainage, and it is aggravated by that pernicious custom of having bathing places within the huts. Without due provision for carrying off the waste it is not surprising that there should be foul soakage, but few recognise the extent to which it may occur; and to show what can happen I need only relate what did happen in 1872 in the Lines of the Marine Battalion in Bombay. The following were the so-called drainage arrangements as reported by Dr. Seward, then in Medical charge, and they may be seen by his diagrams which are here given. The report itself is too elaborate and too lengthy to quote it *verbatim*, so I give its substance. Casks from which the lower ends had been removed were sunk to various depths just outside the huts, and the bath waste was supposed to be led into them by badly-made, coarse, unglazed, semi-cylindrical tiles so placed together as to form a rude pipe drain, and covered over with earth so as to be out of sight. Practically each cask was a cesspool in communication with the hut, free, and direct communication without let or hinderance. It would have been bad enough had nothing but filtered water found its way into the casks, for then there would have been a damp subsoil, but apart from the fact that ordinary bath waste is necessarily loaded with impurities, it is perfectly well known that the "nanees" in native houses, though ostensibly kept for bathing, are only too frequently used as urinaries, and sometimes as latrines. The conditions here described had existed for 35 years, and in all probability they would have been retained in perpetuity, had it not been that there were some deaths amongst the sepoys of the 11th Regiment, N. I., in adjacent Lines, where cesspools were also in vogue. Dr. Seward was the Officer in Medical charge, and in consequence of his remarks condemnatory of the cesspools, he was directed to examine and report upon those in the Lines of the Marine Battalion, the corps with which he was more immediately concerned. In submitting the results of his inspection, he said that in passing down the street of No. 2 Company a bad smell arrested his attention, and it was traced to its source in the narrow verandah of one of the huts. "Removing the verandah surface earth, it was found that the bed of the loosely constructed wash-pipe had given way, and with it the pipe. The cask was filled with a fœtid, pulteceous, black putrescene in a state of pseudo ferment. The soakage of the wash from the bath-room had spread around and above the cask; hence the smell, which rising to the surface, had proclaimed the presence of putrifying matter beneath, although the surface aspect gave no sign." He said the soakage between the bath and the cask had extended *under the floor of the hut;* and round and about the cask was a stratum over 2 feet deep "infiltrated with black putrescence, exhaling on exposure a bad fœtor." This discovery gave him the clue to the source of a peculiar "ash pit" smell which he had noticed in the Lines during breaks in the monsoon, and which he had thought was an emanation from a foul subsoil. It also threw a light upon a certain enfeeblement of the men of the Battalion which had engaged the attention of every medical officer who had been in charge, and the causation of which neither caste, habits, nor dietary could adequately explain. Young men who quitted the hospital with alacrity for duty, every trace of fever gone, would return in a few days repoisoned, and the women and children also suffered. He suggested that the cesspool system should be abandoned, and that, as soon as the weather permitted, the Lines should be vacated, and the whole of the foul subsoil removed if possible. In forwarding Dr. Seward's report the Brigadier General said it disclosed a state of matters "which,

Sketch of former arrangement for disposing of bath room waste in Lines of Marine Battalion at Bombay



The shaded lines show the extent of foul soakage.

Govt. Photozincographic Office, Poona, 1880.

if general throughout the lines, affords grounds for serious apprehension for the future, as well as calling for an immediate remedy, as now affecting the health of the Regiment." He added that, if absolutely necessary, the Regiment might be put under canvas early in November, but it would " entail a great degree of discomfort on the families in a regiment composed almost entirely of married men." In this addendum he seemed to forget that, for many years past, the conditions disclosed must have entailed danger as well as discomfort, and that his suggested examination of the subsoil would have put them to far greater discomfort than a temporary sojourn under canvas. In giving my opinion I said that the difficulty could only be really solved by doing away with the bathing places inside the huts, and substituting outside lavatories for which there are special facilities in regard to water-supply and drainage. With good pavements, and the necessary privacy, nothing more would be required. An alternative plan would be to drain each hut into the centre street drain; but this would merely palliate the evil without removing it. The question as to what should be done with the foul subsoil might be separately considered at a more fitting opportunity, and at that season (September) it was not advisable to disturb the ground. The Brigadier General's comment on this was : " I entirely disapprove of such lavatories as being unsuited to the habits of the natives, and to the locality in question, where, in the first place, there is not available space for the erection of such buildings, and, in the second, even if erected there is reason to apprehend, from the known customs of the sepoys and their families, that they would not be frequented, and rather would be likely to be used for purposes for which they were not intended, and moreover would not prevent ablution in their quarters when there are children." He added that if lavatories were built in the Lines, without urinaries attached to them, the men would probably use the former for necessary purposes. The Commanding Officer of the Battalion said : " If the lavatories are built within a reasonable distance of each set of pendalls, they would answer very well, but if they are to be (as a matter of necessity) built in rear of the hospital, they will be much too far off for the comfort and convenience of those residing near the centre and at the eastern extremity of the Lines, particularly in inclement weather. Under such circumstances I consider it would be better to drain each hut into the centre street drain. By flushing these latter frequently they could always be kept fairly clean." In reply to these remarks I pointed out that, as long as the plan of having detached lavatories appeared feasible, I could not, as Sanitary Commissioner, endorse the suggestion that each sepoy's hut be connected with the street drain. If there were no other plan this might be adopted, but it would have to be carried out very carefully, or there would be the chance of every hut being connected with the *main* drain, and he would be a bold man who would advocate that. As to the lavatories being " unsuitable to the habits of the natives," the same has been said of all the many sanitary improvements of late years ; but it has been found that with wonderful facility the natives adapt their habits to the improved conditions, and very soon appreciate them ; besides when the habits are known to be objectionable, it is perhaps a duty to try and change them. As to the want of space there are 1,038 square yards available on the north-west, and by shifting a fence line there would be 1,473 square yards ; on the east there are 1,019 square yards. As to the hardship in going to the lavatories, they now go three times as far to their latrines ; and there would be no great hardship in going from east to west, seeing that they now go from west to east to the large well where they may be seen at all hours of the day, alongside *the* great throughfare, washing themselves and their clothes in violation of all decency. If urinaries were necessary in connection with the lavatories, those by Macfarlane will stand on a plot 5′ × 5′, and as to their being used for other purposes, the remark hardly applies to ground in *Military occupancy*. It was thought they would not be frequented, but it is a fact patent to all that in Bombay a washing place is established wherever there is a water connection. The drinking fountains and dipping wells are notably so used, and the public urinaries even are not exempted.

43. With such startling disclosures, and such unwelcome conditions, it might have been supposed that the opportunity would be taken to prevent a possibility of their recurrence; but, strange to say, the opportunity was lost, and the opposition came from an unexpected quarter—from the Military authorities. When

water from Vehar was first brought into Bombay there were those who said the natives would not take it as it was opposed to their habits. When the Railway was commenced it was said the natives would not use it as it was opposed to their habits, and the same senseless plea has been urged against the telegraph and steamers and tram-cars, but all have been accepted. Seeing, too, what mischief had resulted from "the habits of the natives," it was about time that those habits should be changed, but the Military authorities thought otherwise, and decided to retain the bathing places within the huts. Now, however, they are of costly cut stone, and they discharge on to cut stone water tables which are run into the main drain *without anything in the shape of a trap.* The short length from the bathing place to the outside wall is a constant trouble to the Engineer, as the discharge pipes are merely the common unglazed earthenware, and they are constantly choking and breaking as they used formerly. The water tables are excellent, but, however well the bathing places are pointed, they must deteriorate, and there must still be soakage; in fact the remedy is a mere compromise. The foul and filthy casks have been removed, and the excavations filled in with clean earth; but the soakage "under the floor of the hut," and the stratum over two feet deep "infiltrated with black putrescence" were not dealt with.

44. At a subsequent date the Bori Bandar Lines were being extensively altered, and again I tried to get detached bathing places, but again I was overruled, and the drainage arrangements carried out were similar to those for the Marine Battalion, except that the bathing places were asphalted, and a trap was placed at the junction with the street sewer. At a still later date—May 1878—it was proposed to have detached lavatories in the Native Lines at Poona, and plans and estimates were duly submitted. On this occasion the following Resolution of Government was issued in the Military Department:—

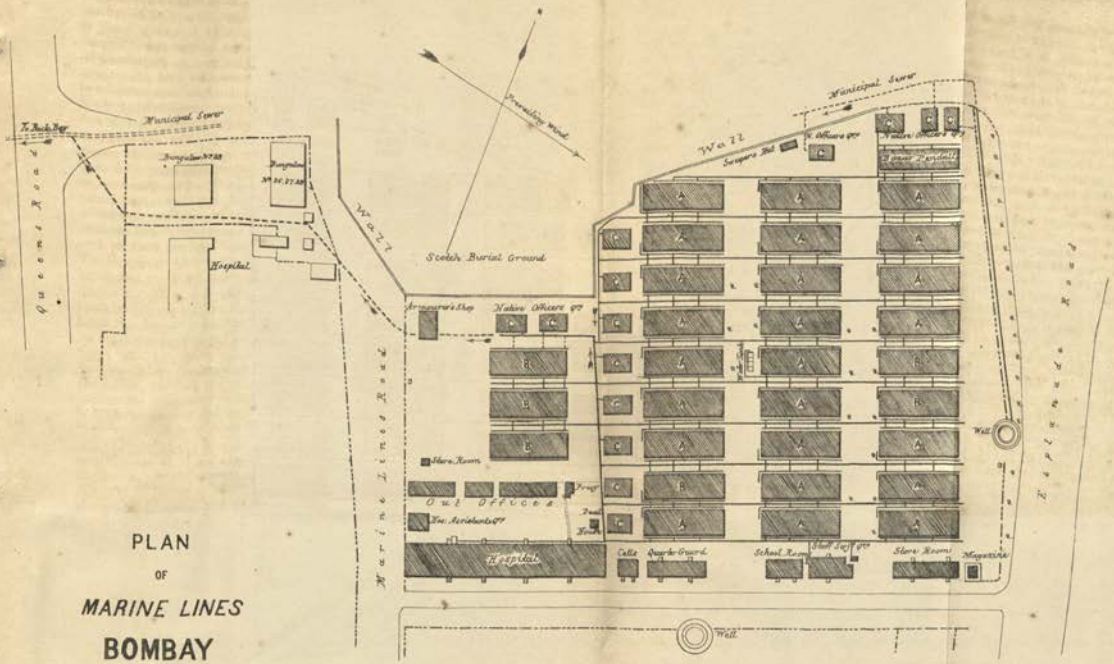
No. 4031, dated 24th August 1878.

"The existence of Nanees, as at present constructed, within the walls of the quarters occupied by native troops is regarded as a fruitful source of fever. Even if made with a certain quantity of chunam they become sooner or later leaky, and tend to render the floor and walls in their immediate vicinity damp."

"It is suggested, on the recommendation of His Excellency the Commander-in-Chief, that Nanees should be paved, and be furnished with proper masonry drains. This undoubtedly is the best course to adopt, if these bathing places are to be allowed inside the walls of buildings; and as it is stated that the proposal to build detached bathing places for the families is objected to, owing to warm water being used for bathing, there appears to be no alternative but to allow well paved bathing places for the women and children to be retained inside the quarters."

45. It was conceded, however, that the inside Nanees were only to be allowed in the married quarters: for the unmarried an open screened platform was to be provided. I trust most sincerely this may prove the thin end of the wedge, for I look upon these Nanees as a source of untold mischief. It is not as though they were wooden or metal vessels discharging into down-takes; it is not as though they were raised platforms of good masonry well pointed and well drained. In the majority of instances there is simply a mud border to a mud floor, and be it remembered bathing is with natives very different to what it is amongst Europeans. With them there is no immersion, but water is poured over the body, so there is more splash and spill. I have spoken at length about these bathing places, because I firmly believe that what occurred in the Lines of the Marine Battalion in Bombay occurs in a greater or less degree in all the other Lines throughout the Presidency; not of course to anything like the same extent, but quite sufficiently to demand the most serious attention of Government.

46. It is beside the mark to inquire *when* it was ruled, that in these Lines each sepoy should have a separate room, but it is very much to the point to ask why it should be so. Does caste require it? No appeal can be made to the sepoy himself, for obviously he is too self-interested to be impartial, and, with all respect, his officers have accepted the custom without asking how much of it is a *bonâ fide* caste requirement, and how much a bye-gone concession to pampered prejudice. In civil life a man's wants and wishes are regulated by his means, but when he becomes a Military unit those wants and wishes must be subordinated to the general interest. This necessity is recognised when a regiment moves



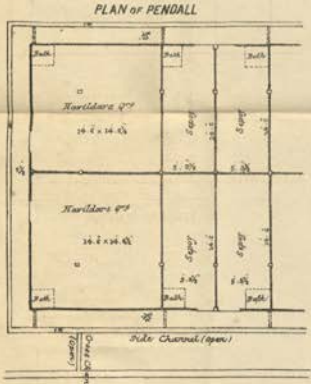
PLAN
OF
MARINE LINES
BOMBAY

Scale of 100 Feet to an Inch

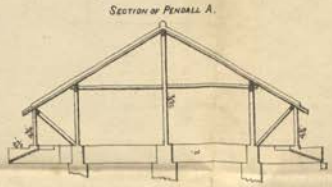
REFERENCES

Masonry Covered Drain	
" Open Drains	
Native Officers Quarters	C
Sepoys Pendalls	A.B.

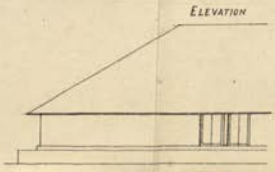
PLAN OF PENDALL



SECTION OF PENDALL A.



ELEVATION



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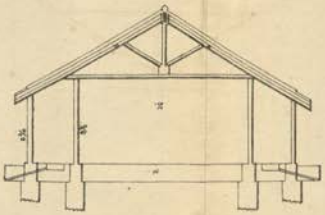

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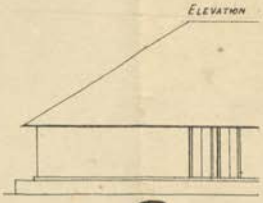


Quarter Master General's Office
Poona March 1880

Scale of 10 Feet to an Inch

Govt Photozincographic Office Poona 1880

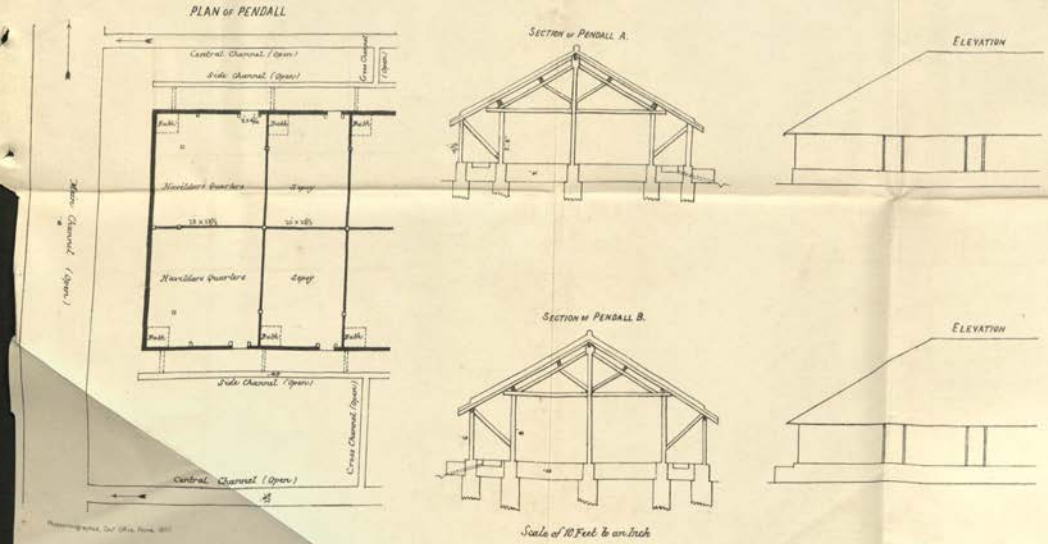
B. H. Pottinger Lt Colt
Deputy Quarter Master General

PLAN
OF
BOREE BUNDER LINES
BOMBAY

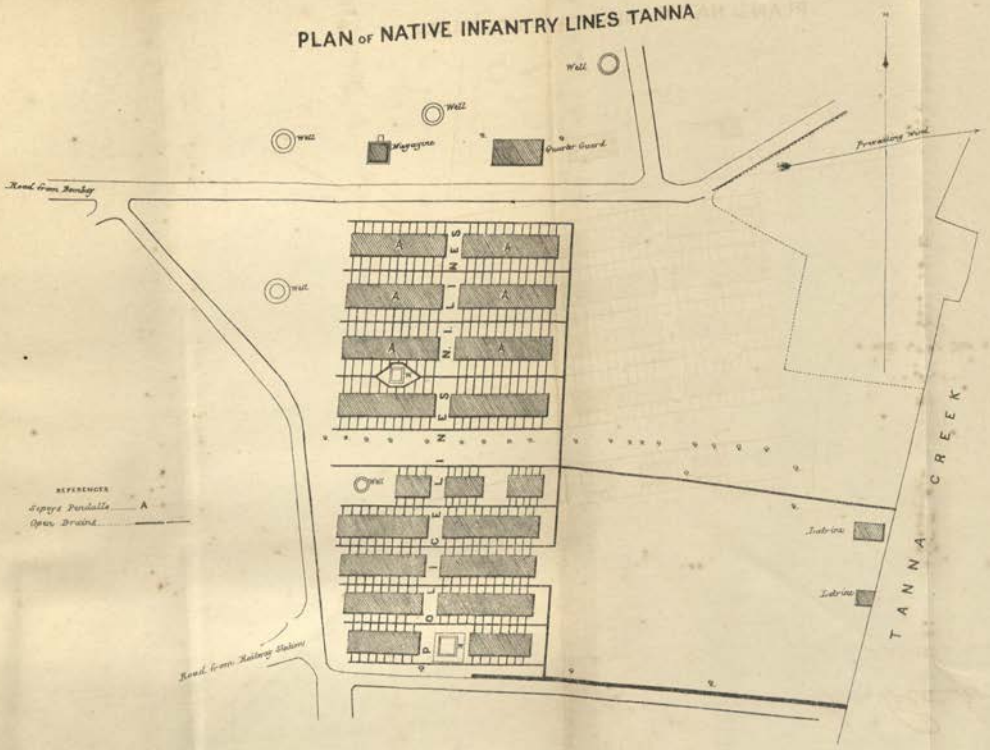
Scale of 100 Feet to an Inch

REFERENCES

Sepoys Pendalls ..... A.B.
Native Officers qrs ..... C.
Open Drains ..... ——

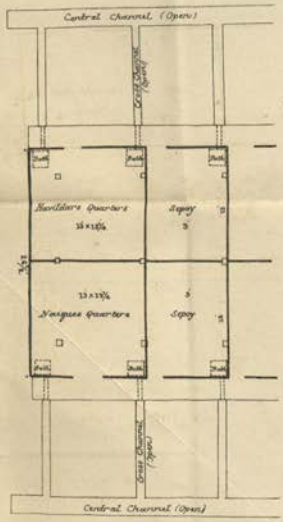


PLAN OF NATIVE INFANTRY LINES TANNA

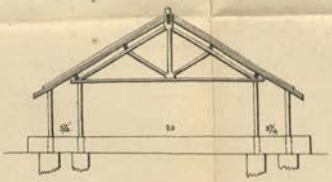


Scale 100 Feet to an Inch

PLAN OF PENDALL. A



SECTION



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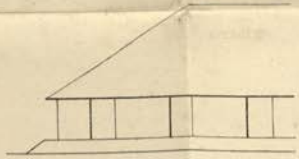
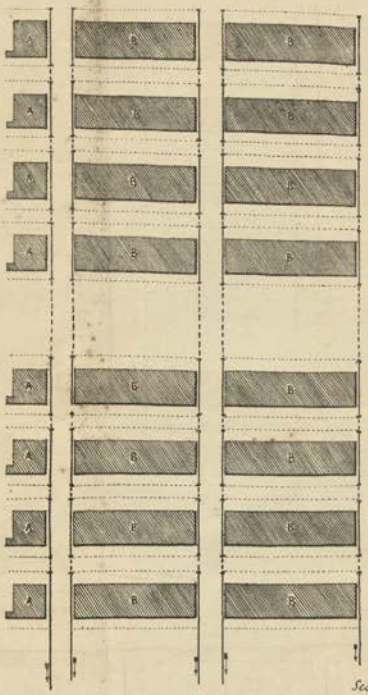


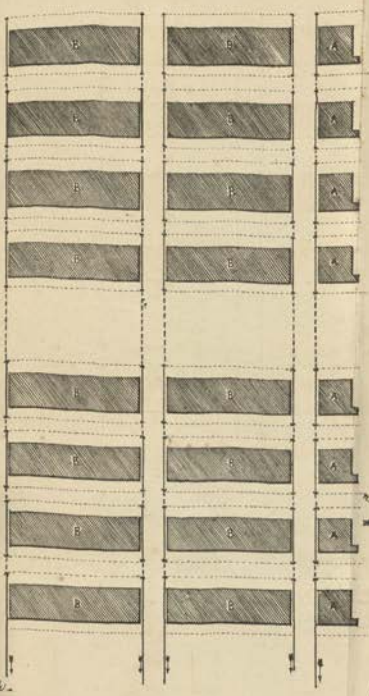
Scale 10 Feet to an Inch.

Photozincographed, Genl. Office, Pune, 1880.

E. H. Pottinger.
Lieut. Colt.
Deputy Quarter Master Genl.

PLAN of RIGHT FLANK NATIVE INFANTRY LINES BELGAUM





Scale of 100 Feet to an Inch.

REFERENCES

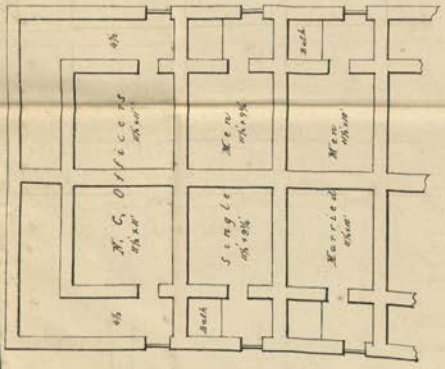
Covered Drain .....

Open Drain .....

Native Officers Qrs ..... A

Sepoys Pendalls ..... B

PLAN of PENDALL



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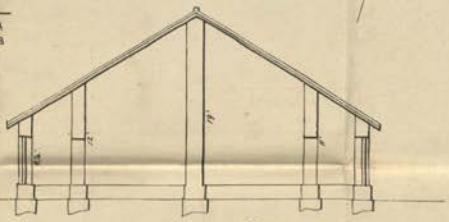
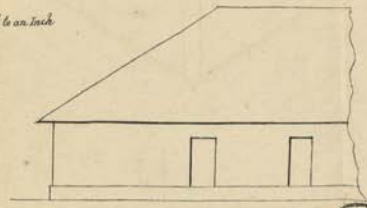


ELEVATION

Scale of 10 Feet to an Inch

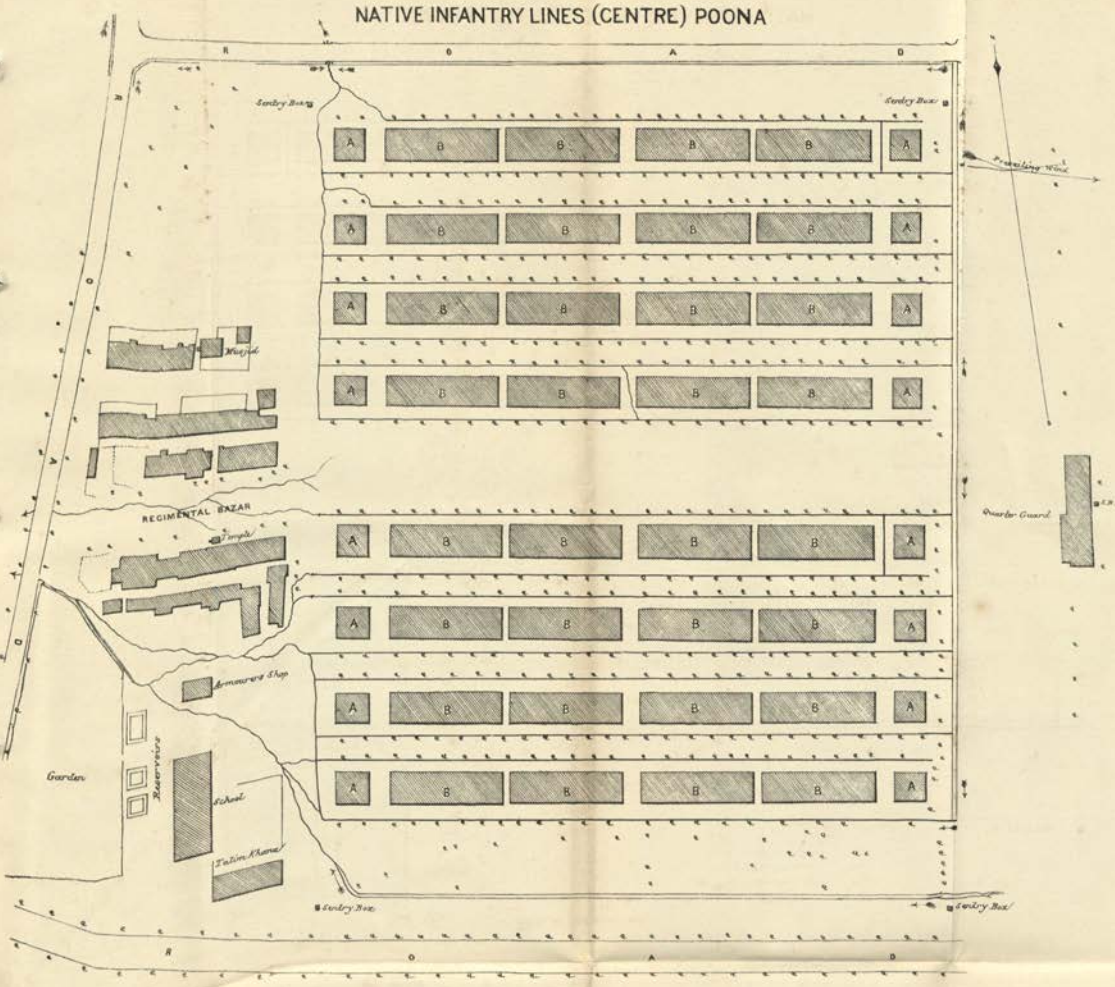


Quarter Master Generals Office
Poona March 1880

A. H. Pottinger Lt Col
Deputy Quarter Master General

Photozincographed at Genl Office, Poona, 1880

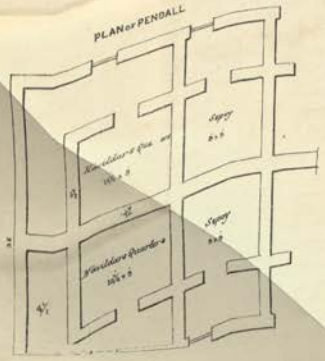
NATIVE INFANTRY LINES (CENTRE) POONA

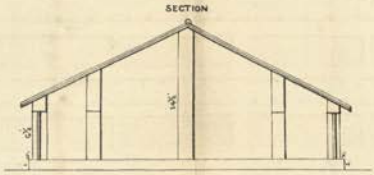


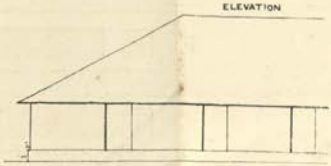
Scale 100 Feet to an Inch

REFERENCES

Native Officers Qrs. A
Sepoys Pendalls B
Open Drains



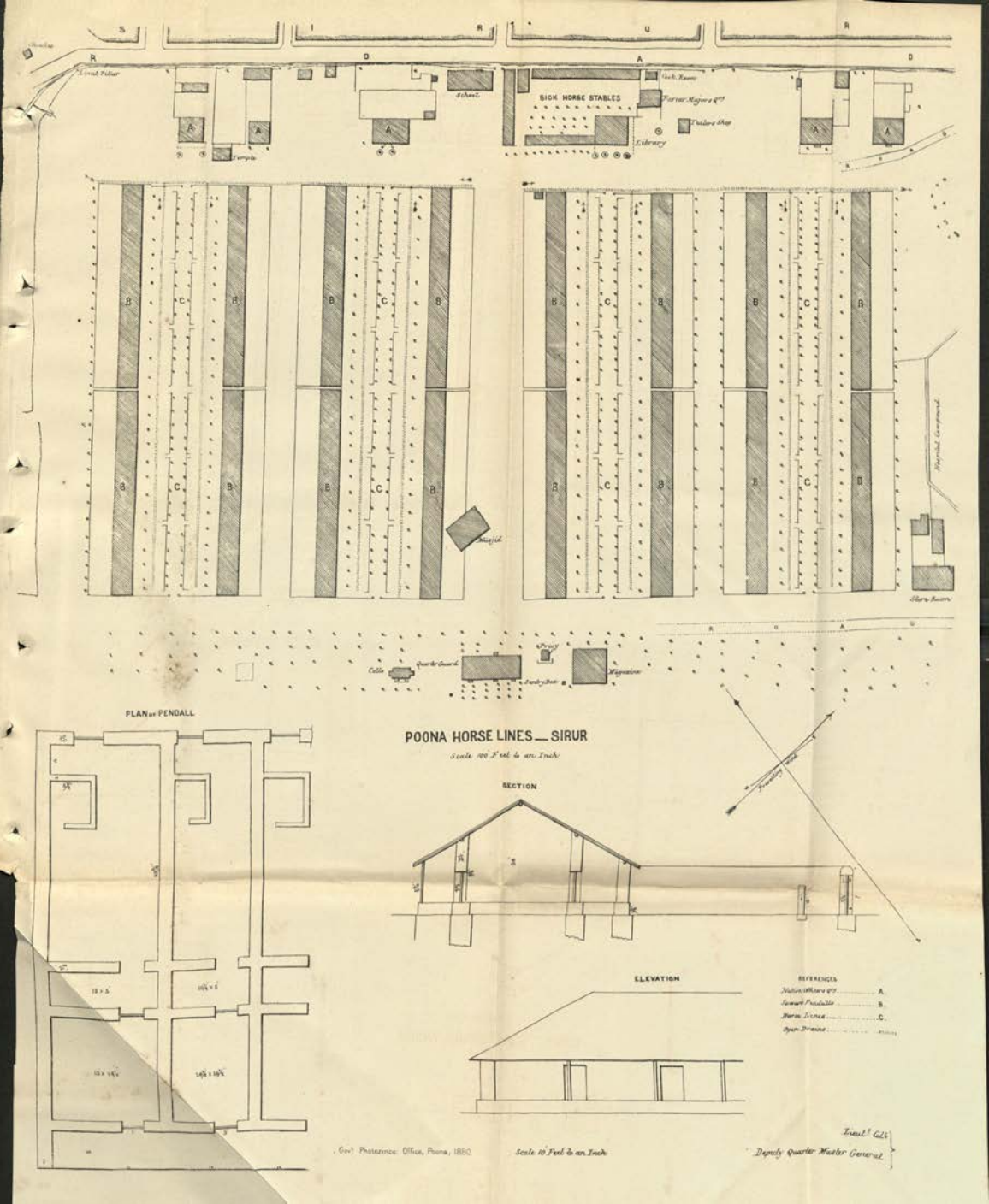




Scale 10 Feet to an Inch

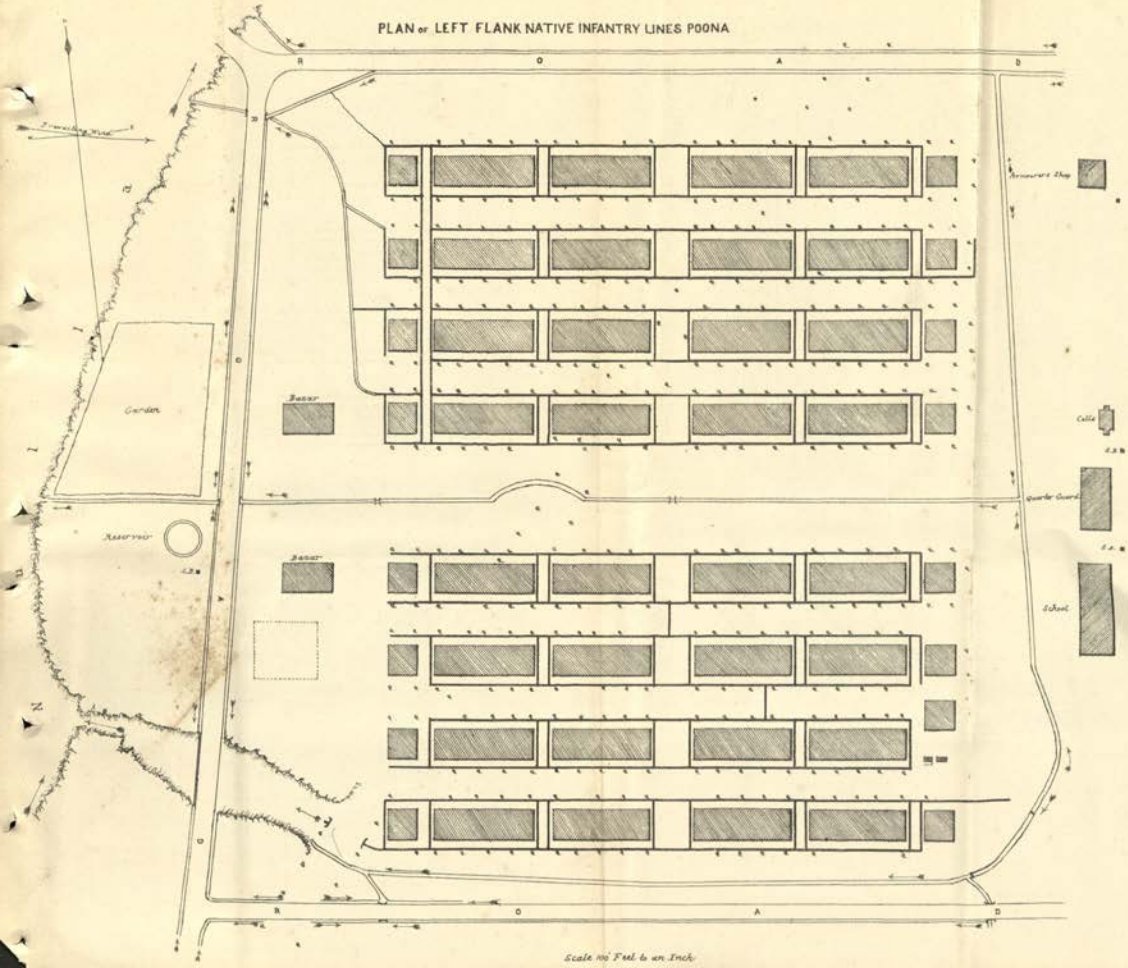
Govt Photozinco Office, Poona, 1880

Quarter Master Genl Office
Poona March 1880



S I R U R
R O A D
Lineal Pillar
School
SICK HORSE STABLES
Cook Room
Farrier Majors Qrs
Tailors Shop
Library
Temple
Mosjid
Magnetic Compound
Store Room
Cells
Quarter Guard
Privy
Sentry Box
Magazine
PLAN OF PENDALL
POONA HORSE LINES — SIRUR
Scale 100 Feet to an Inch
SECTION
ELEVATION
REFERENCES
Native Whites Qrs ..... A
Sowark Pendalls ..... B
Horse Lines C
Open Drains .....
Govt Photozinco Office, Poona, 1880
Scale 10 Feet to an Inch
Lieut. Col.
Deputy Quarter Master General

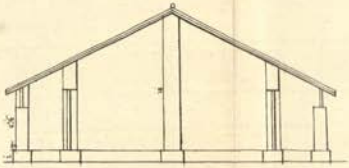
PLAN OF LEFT FLANK NATIVE INFANTRY LINES POONA



Scale 100 Feet to an Inch

PLAN OF PENDALL

SECTION



References

Open Drains

Covered Drains

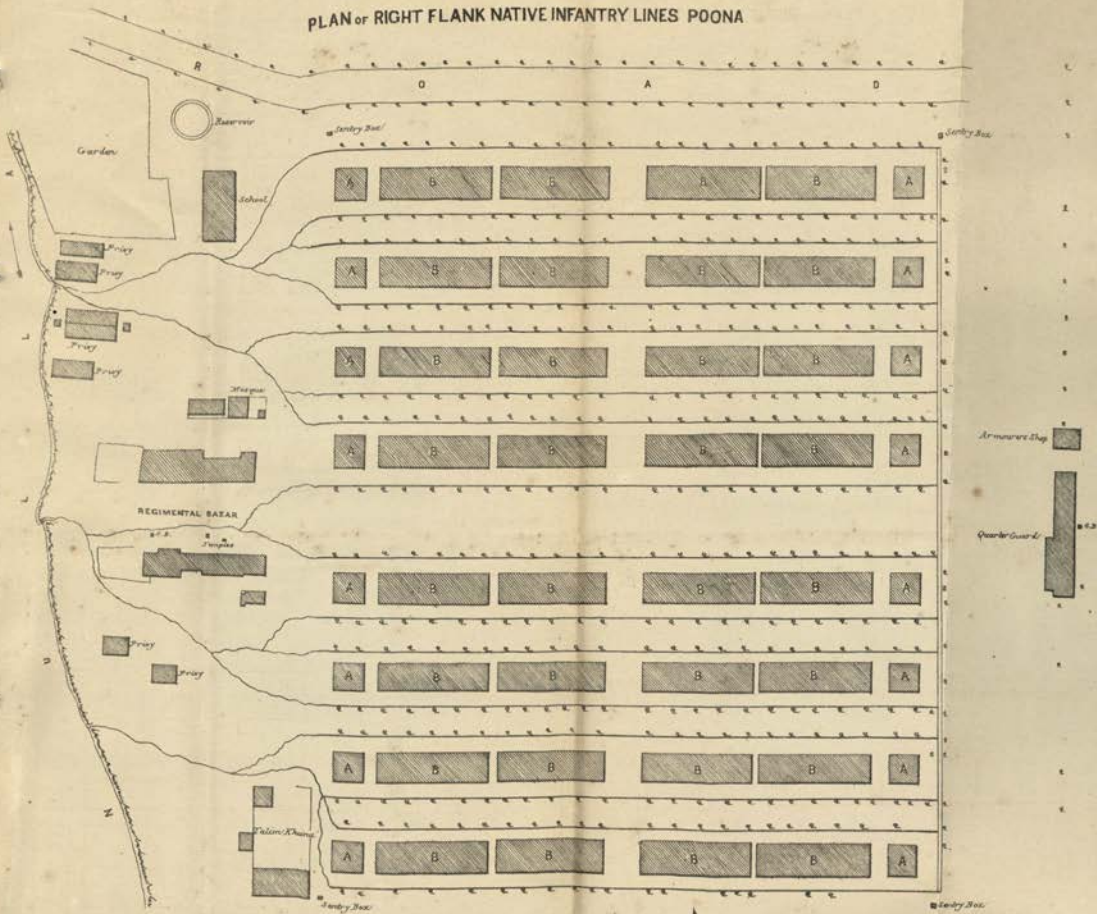
ELEVATION

B. H. Pottinger
Lieut. Col.
Deputy Quarter Master Genl

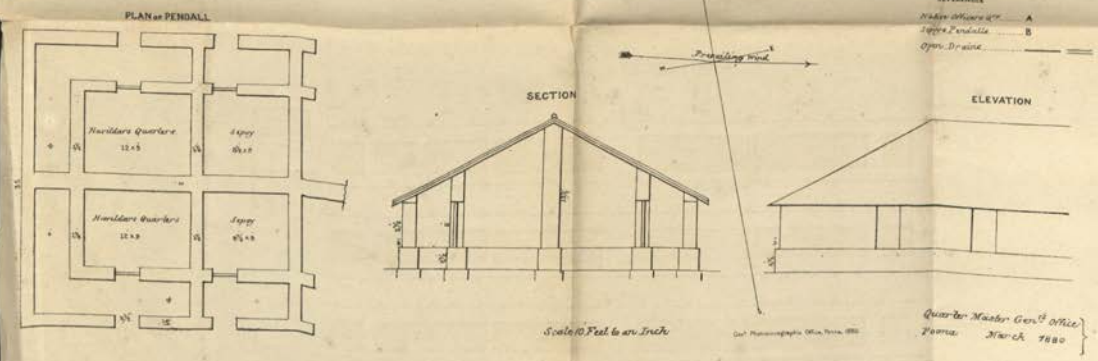
Photozincographed, Govt Office, Poona, 1880.

Scale 10 Feet to an Inch

PLAN OF RIGHT FLANK NATIVE INFANTRY LINES POONA



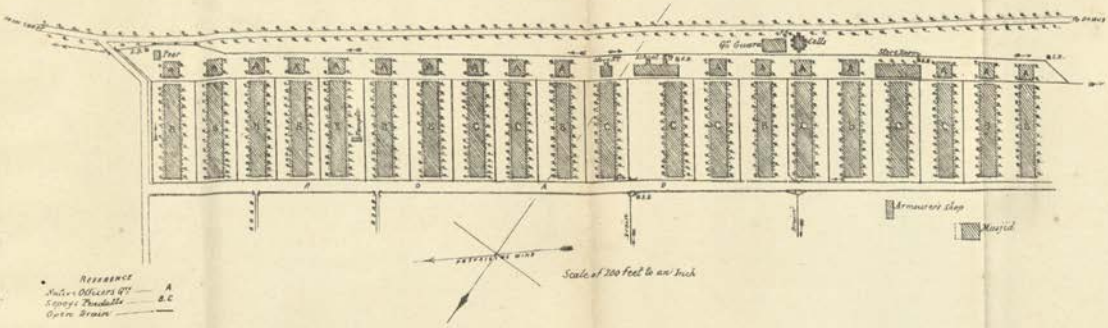
Scale 400 Feet to an Inch



Scale 10 Feet to an Inch

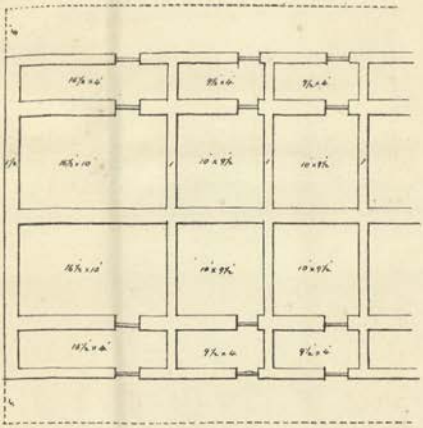
Quarter Master Genl's Office
Poona March 1880

PLAN OF NATIVE INFANTRY LINES, SURAT.

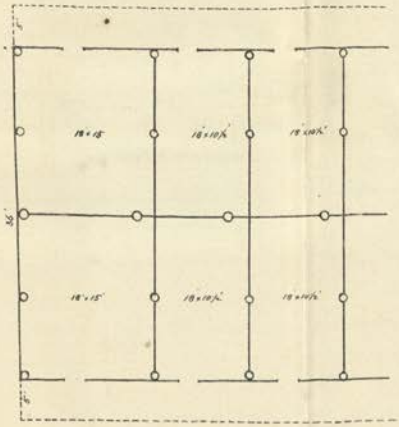


Residence
Native Officers Qrs — A
Sepoys Pendalls — B.C
Open Drains —

PLAN OF PENDALLS B.



PLAN OF PENDALLS C.



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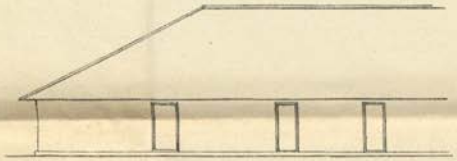

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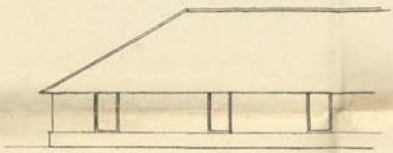

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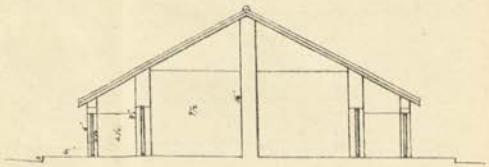

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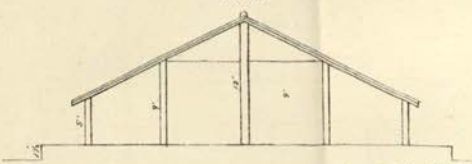
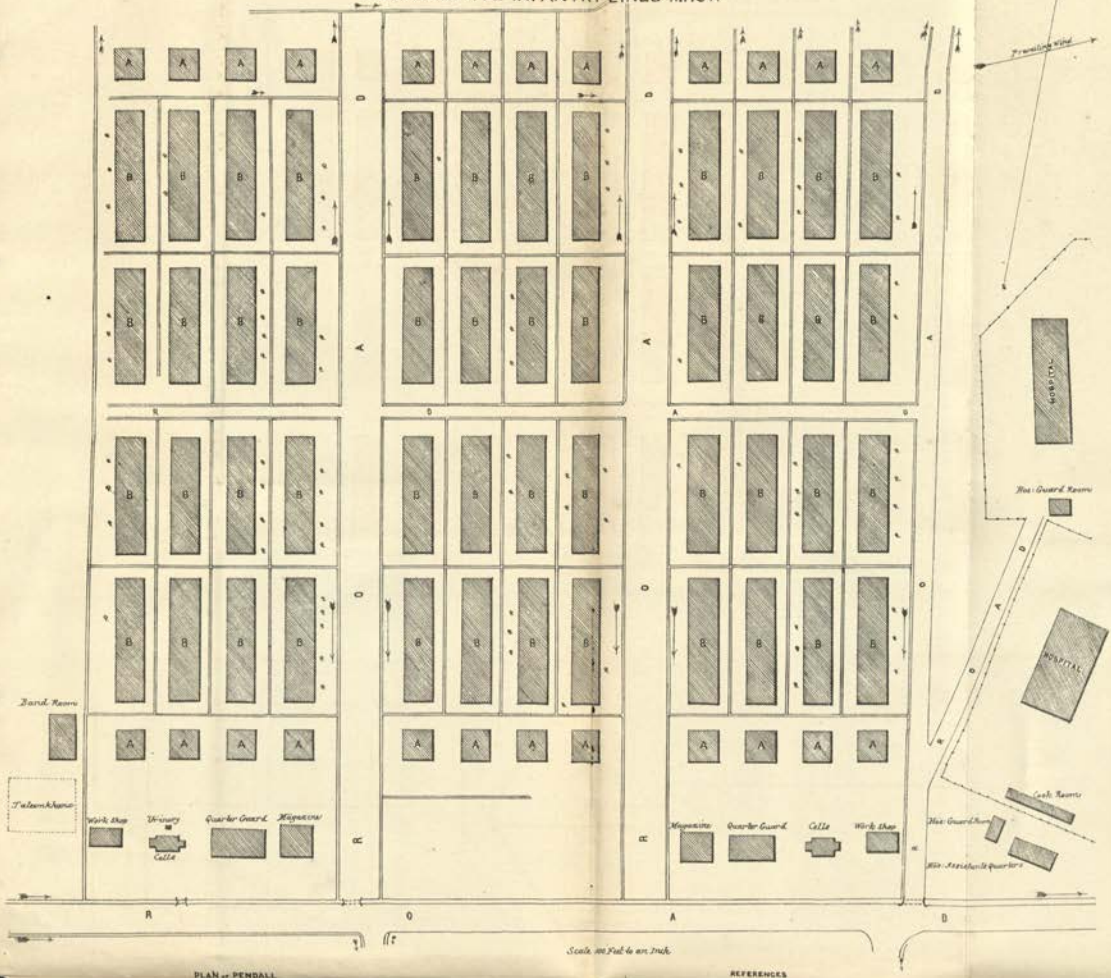


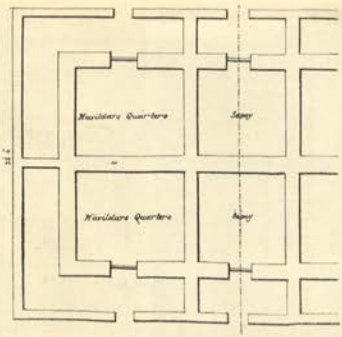
Scale 10 feet to an Inch

Quarter Mr Gen.l Office
Poona March 1860.

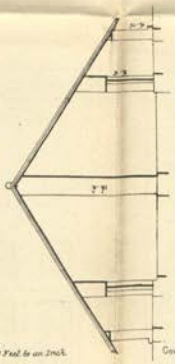
PLAN OF NATIVE INFANTRY LINES MHOW



PLAN OF PENDALL



SECTION ON A.B.

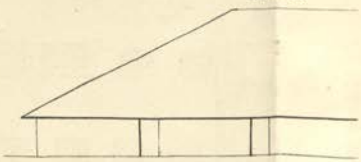


Scale 10 Feet to an Inch.

REFERENCES

Native Officers Qrs ..... A
Sepoys Pendalls ..... B
Open Drains .....
Covered Drains .....

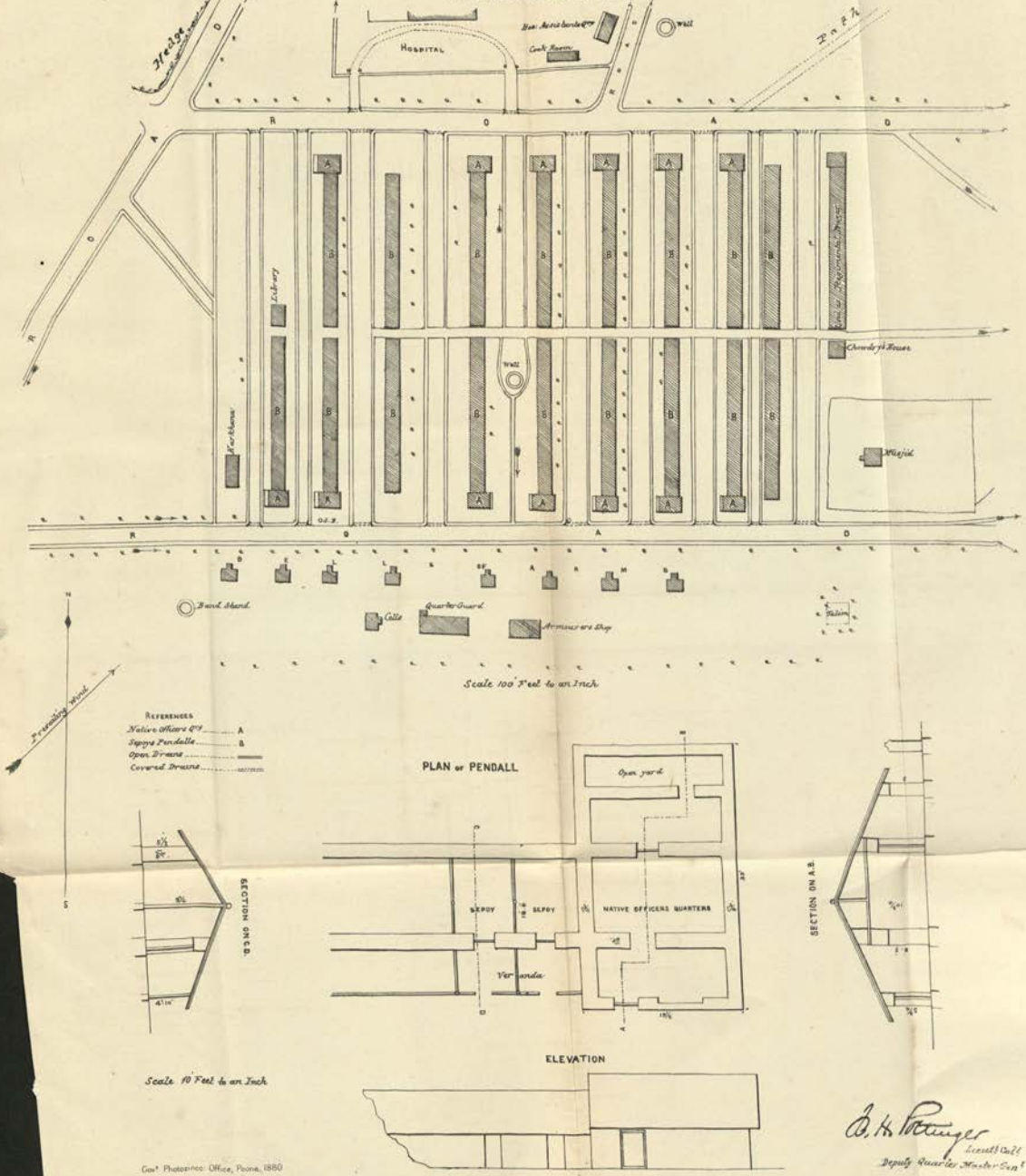
ELEVATION



B. H. Pottinger
Lieut. Coll
Deputy Quarter Master Gen.l

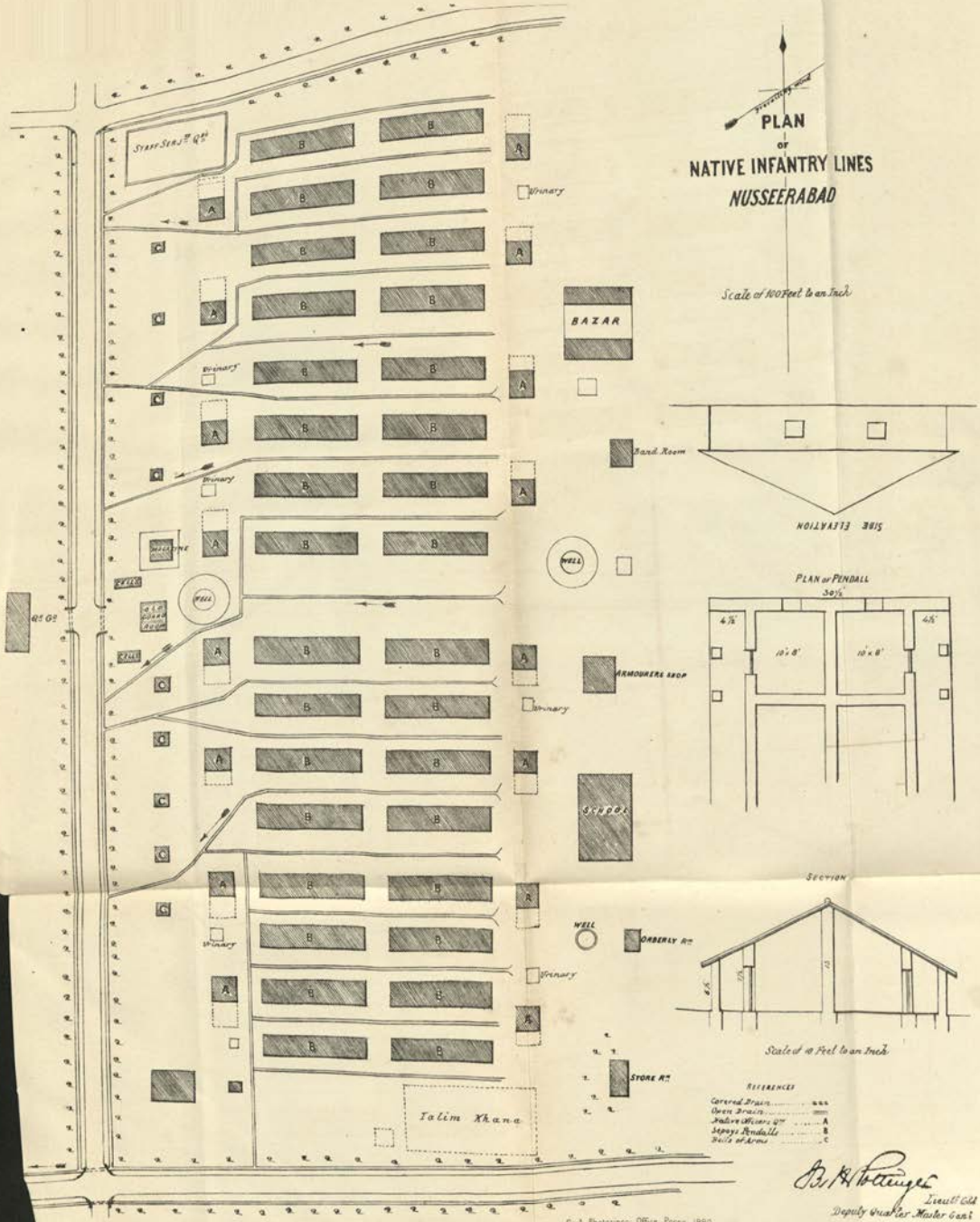
Gov.t Photozincs: Office, Poona, 1880.

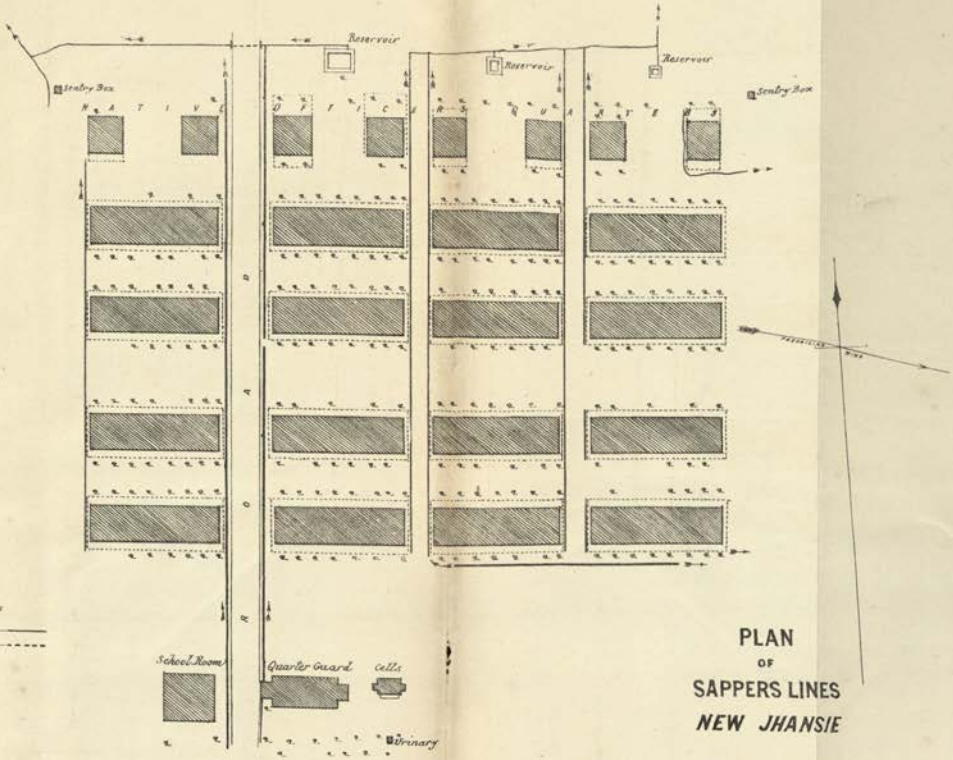
PLAN OF NATIVE INFANTRY LINES MEHIDPUR



B. H. Pottinger
Lieut. Col.
Deputy Quarter Master Genl

Govt Photozinco Office, Poona, 1880


PLAN
OF
NATIVE INFANTRY LINES
NUSSEERABAD
Scale of 100 Feet to an Inch
Prevailing wind
STAFF SERS^TS Q^RS
Urinary
BAZAR
Band Room
WELL
MILLTIME
CELL
Q^S G^D
ARMOURERS SHOP
SCHOOL
ORBERLY R^M
STORE R^M
Talim Khana
SIDE ELEVATION
PLAN of PENDALL
30½'
4½'
10' x 8'
SECTION
Scale of 10 Feet to an Inch
REFERENCES
Covered Drain
Open Drain
Native Officers Q^RS A
Sepoys Pendalls B
Bells of Arms C
Lieut^t Col^l
Deputy Quarter Master Genl
Gov^t Photozinco Office, Poona, 1880

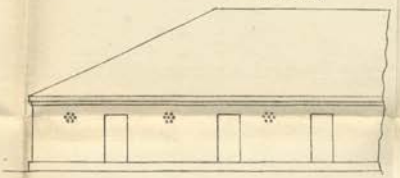


PLAN OF SAPPERS LINES NEW JHANSIE

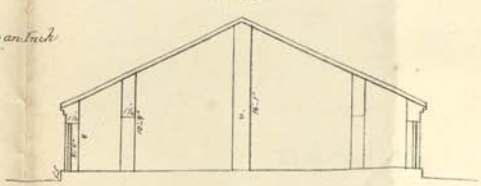
Scale of 100 Feet to an Inch

PLAN OF PENDALL

ELEVATION



SECTION



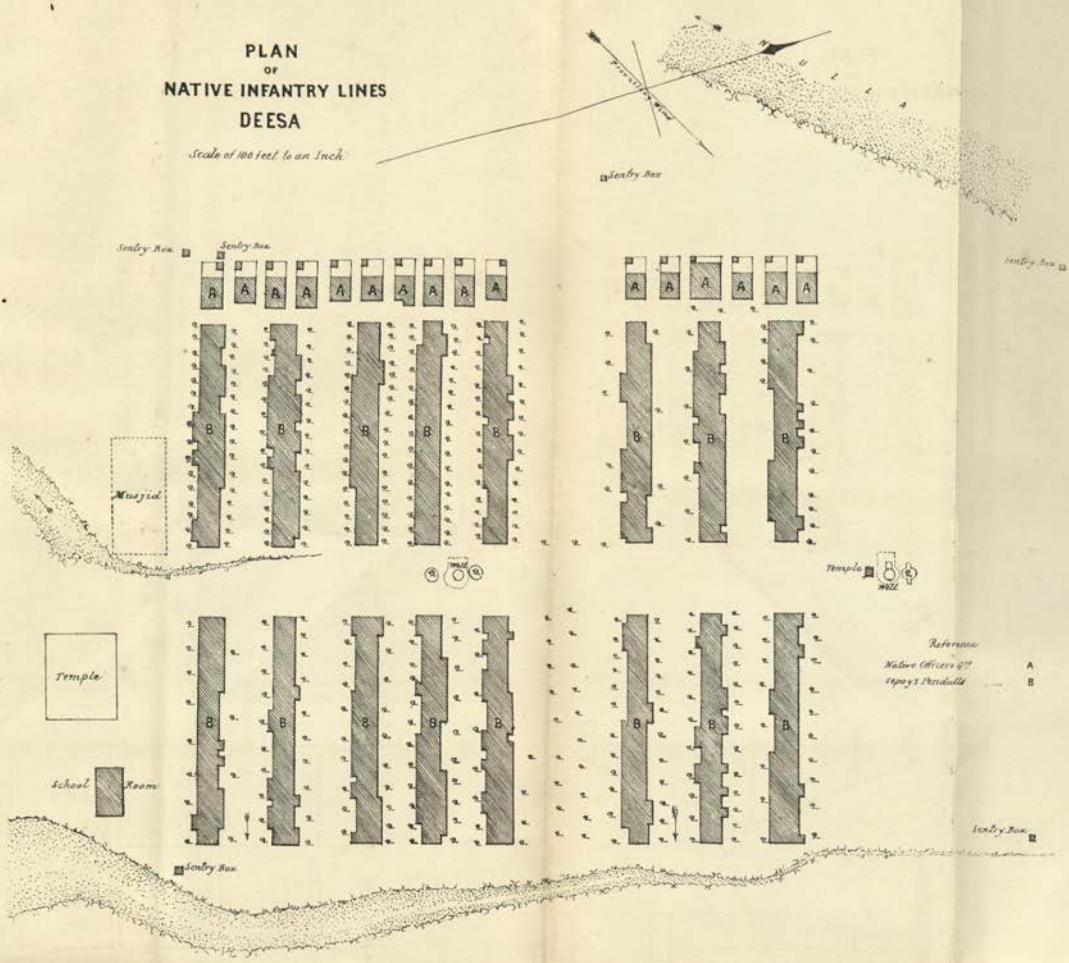
Scale of 10 Feet to an Inch

Quarter Mr. Gen.l Office
Poona 29th April 1880

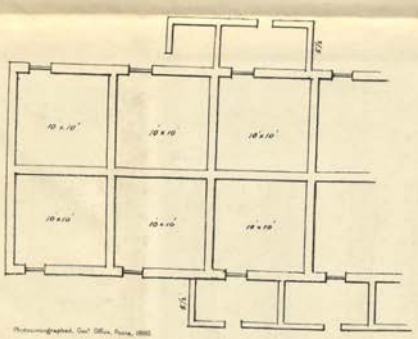
Govt Photozinco: Office, Poona. 1880

PLAN
OF
NATIVE INFANTRY LINES
DEESA

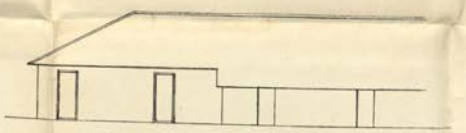
Scale of 100 feet to an Inch



PLAN OF PENDALL

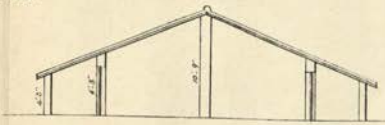


ELEVATION



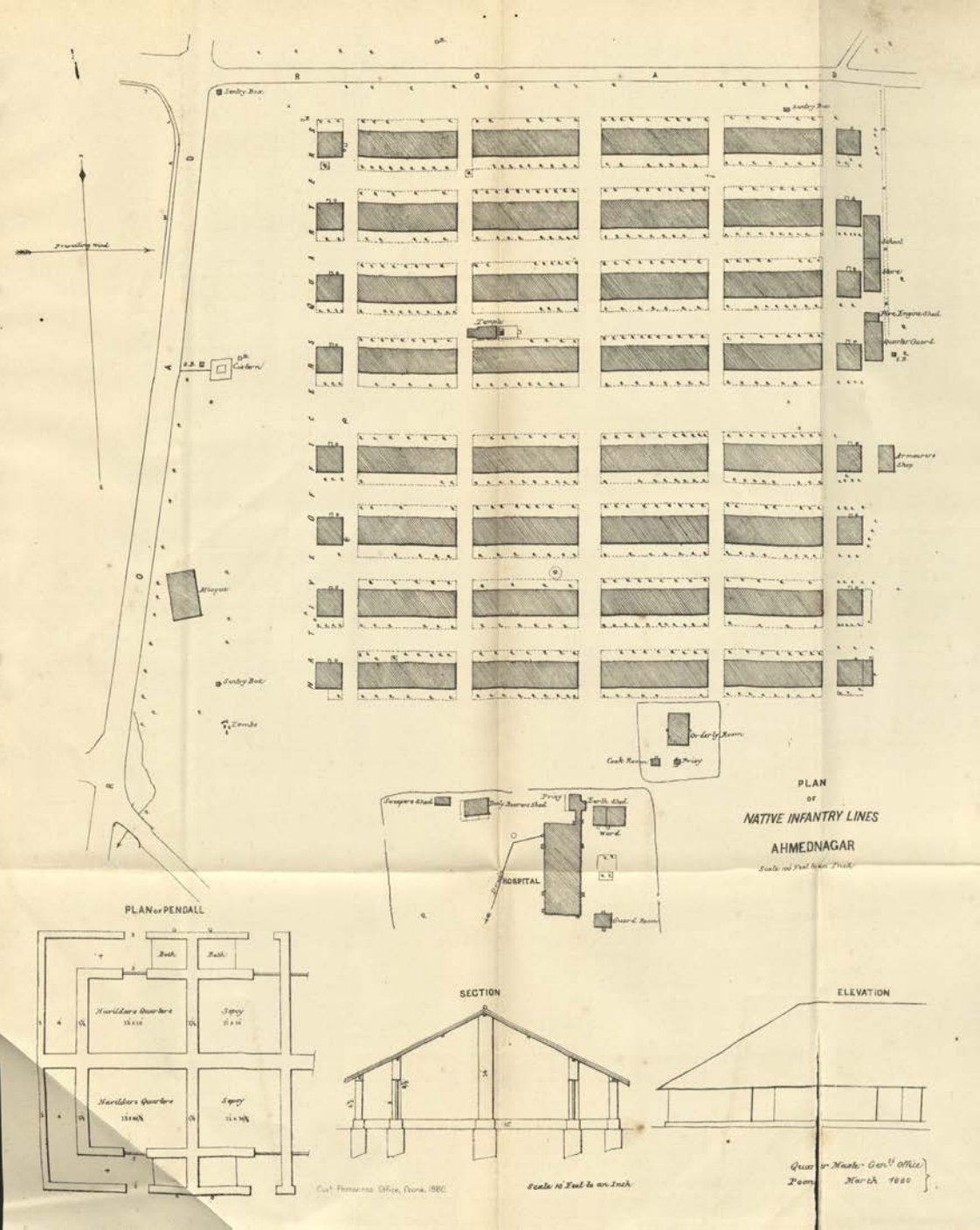
Scale of 10 feet to an Inch

SECTION



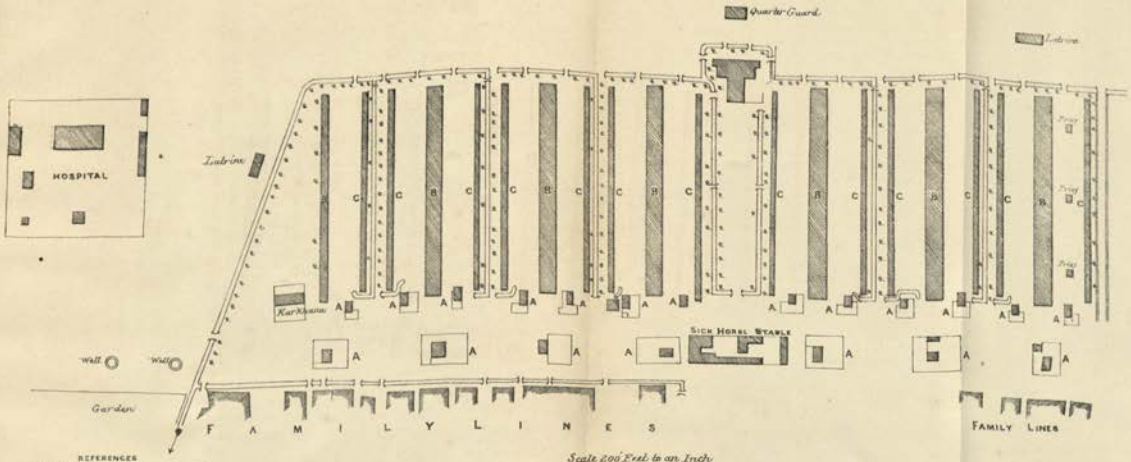
Photozincographed, Govt Office, Poona, 1880

Quarter Mr Govt Office, Poona March 1880.



Sentry Box
Sentry Box
Prevailing Wind
Cistern
Mosque
Sentry Box
Tombs
Temple
School
Store
Fire Engine Shed
Quarter Guard
Armourers Shop
Orderly Room
Cook Room
Privy
Sweepers Shed
Dirty Bearers Shed
Privy
Earth Shed
Ward
HOSPITAL
Guard Room
PLAN
OF
NATIVE INFANTRY LINES
AHMEDNAGAR
Scale 100 Feet to an Inch
PLAN of PENDALL
Bath
Bath
Havildars Quarters
Sepoy
Havildars Quarters
Sepoy
SECTION
ELEVATION
Scale 10 Feet to an Inch
Quarter Master Genl Office
Poona March 1880
Govt Photozinco Office, Poona, 1880

LINES 3RD REGIMENT SIND HORSE JACOBABAD



Scale 200 Feet to an Inch

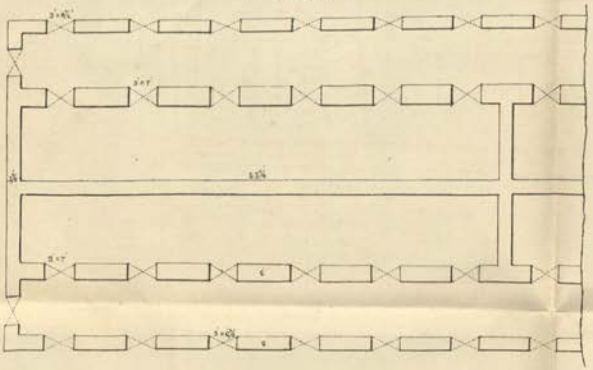
REFERENCES

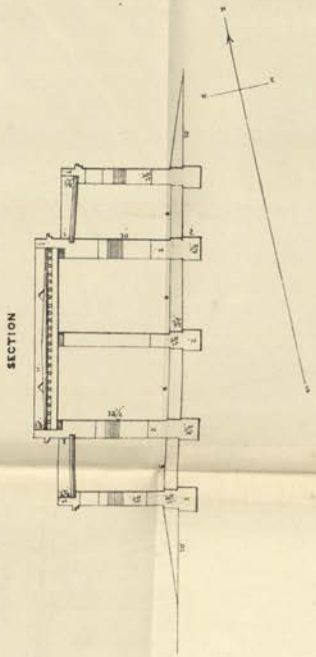
Native Officers &c	A
Pendalls	B
Stables	C
Open Drains	

PREVAILING WIND

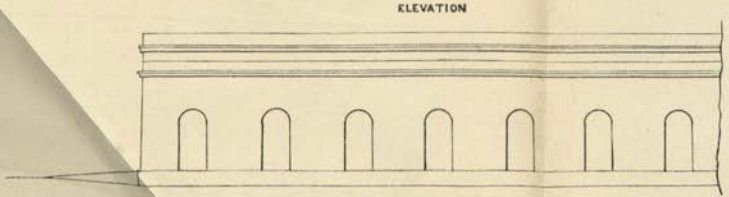
In summer from South and South-East; in autumn very little wind; in spring from the East; in winter from North and North-West.

PLAN OF PENDALL





ELEVATION



Scale 10 Feet to an Inch

B. H. Pottinger Lieut Col
Deputy Quarter Master General

Govt Photozincographic Office, Poona, 1880

out into camp, and sepoys are packed into tents by twenties. In guard-rooms, again, there is a common occupancy, and the plan might be extended to barracks with benefit to the sepoy, and with great saving to Government.

47. In addition to the evils of defective construction and a polluted subsoil from want of efficient drainage, there is the noxious practice of sleeping upon the ground, and there are difficulties connected with diet and clothing; but they are well known to Government.

Bombay Cotton Mills.

48. At the close of last year I was directed to make a general inspection of the Cotton Mills, and my report on them was duly submitted to Government. As ordinary defects and neglected sanitation can be dealt with under the Municipal Act, it is unnecessary to speak about them now, unless it be to say that, although considerable attention is paid to the comfort and well-being of those employed, there is still much room for improvement. But, apart from these matters, the points which arrest attention are—

1. The want of ventilation.
2. Reduction in the hours of labour.

Ventilation.

49. As regards ventilation the windows, so conspicuous by their number, are too frequently closed on the plea that the comparatively lower temperature of the earlier hours breaks the thread; and, as the plea is said to be tenable, there is all the more reason why *permanent* ventilation should be provided, which cannot be impeded at will. For want of it the atmosphere of the rooms is more or less foul and oppressive, and there is an exhausting heat that must tell injuriously on those who work in it all day and every day.

Hours of labour.

50. As regards the hours of labour, let any one take but one of his own days, and run over its public, private, and social occurrences between sunrise and sunset, and then let him try, and realise that, for all those hours, there are thousands of men, women, and children shut up in sweltering stuffy rooms, and engaged at work which admits of no sitting down. They have their half hour's respite, or it may be one hour, and they pass in and out on various pretexts; but giving them every advantage, conceded and stolen, I think an impartial opinion will be that the working time is too prolonged. And it must be remembered that to reach the mill at its opening hour the hands have frequently to leave their homes before daylight, and walk long distances, and it is often dark before they return. Some say the hours are not too long, and, to strengthen the assertion, they quote the evidence of some of the mill hands themselves given before the Commission, which reported on the subject in 1875. But that evidence must be taken *cum grano*, for it was that of selected witnesses examined before their employers, and every one knows that when the lower order of natives are asked for an opinion, they invariably say what they think they are wanted to say: others, again, say this question of time should be left to the arbitrament of employers and employed, and they use the specious argument that, because the latter make no complaint, there is no ground for interference. As well might it be urged that because no complaint is made of their physical surroundings, no attempt should be made to improve them. A consensus of impartial opinion is in favour of lessening the hours of labour, and if, in addition, provision be made for *permanent* ventilation, I think all else may be left to those who work the Municipal Act. It is but fair to the establishments visited to say that I was everywhere received with the greatest courtesy; and although it was known that the results of my observation would be submitted to Government, there was no attempt to evade inquiry or withhold information.

Liquid waste from Barracks.

51. In connection with Barrack conservancy one of the most unwelcome and unsatisfactory charges is that for removing the liquid waste from main and subsidiary buildings. The method of removal, too, is still so crude and clumsy that at regular recurring times the nuisance created is perfectly disgusting, and

not only does it pervade the immediate locality, but the carts leave their filthy trail along the different thoroughfares traversed. And the urinals are always offensive, even when their own peculiar smell is killed by a free use of deodorants. It was lately suggested that in the Wanowree barracks at Poona the great unwieldy iron urinals should be replaced by others of glazed stoneware, but the difficulty is that, although there is an ample water-supply delivered by gravitation, there are no corresponding facilities for removal. As it was in the beginning so it is now, and drainage is still represented by the sweeper and the puckal bullock. As the old urinals are in a semi-detached tower, it would be easy enough to fix the new ones, and connect them with a glazed stoneware stack pipe to be carried up *full size* above the coping, and well clear of all roof openings; all this is easy enough, and thorough flushing could be arranged, but there is the old difficulty as to removal. The Executive Engineer apprehended, and rightly, that unless there was a constant flow through the urinals and discharge pipes, they would soon become foul and offensive; but constant flow means an increased quantity to be removed, and increased cost. At this stage the Quarter Master General asked whether it would not suffice "if the liquid, chiefly water, was carried out by pipe a short distance, and there allowed to absorb in the ground." In another form the question would be—To what extent may liquid waste be used on land near inhabited buildings without danger to health, and without creating a nuisance? I had already put a somewhat similar question to Mr. Rawlinson as to the waste from lavatories, and he had referred it to Dr. Sutherland, who replied "wherever they have a sufficient area of ground, not too close to Barracks and Hospitals, and if they distribute the water properly on dug-up ground or ground under crops, there is no risk." In sending me this answer Mr. Rawlinson was kind enough to supplement it with remarks to the following effect:—Speaking of sewage, he said that in England 10,000 tons of sewage are easily disposed of on one acre, in one year, to grow crops; and in India ten times that volume might be used on one acre of sandy soil without creating a nuisance, and this might be done year after year on the same land to the end of time. Sandy land near Edinburgh has been continuously and coarsely irrigated with sewage for more than 200 years; and at a depth of 9 inches the sandy sub-soil is as clean as if sewage had never been near it. He said that, without making a nuisance or a swamp, 224 gallons of sewage or dirty water might each day in the year be put on to 50 square yards of ground. This would be 1 inch vertical if put on all at once, but poured on gradually and evenly, the whole would be absorbed or evaporated. This weight and depth of water can be applied on land at Home, and open land—that is, sandy sub-soil—can receive double this volume, and absorb the whole in one day. In making these observations Mr. Rawlinson implied, that what should or should not be done, a knowledge of the local conditions was indispensable, and of these he knew nothing: his remarks must, therefore, be taken as having a general significance; but whatever the action, it was absolutely necessary to carry it out with "unceasing care." He suggested that an area of 50 square yards should be prepared, and that 224 gallons of dirty water should be put on to it, and the results noted. If favourable, the irrigation might be repeated next day, this time with 224 gallons mixed with the excreta of some two or three persons, and the results again noted.

52. Allowing 80 men per barrack, and assuming that each man micturated twice during the night—an improbability—passing each time half a pint, the quantity every morning would be 80 pints, or 10 gallons. In addition there would be the water, and this, with intermittent service, would be about half a gallon per time per urinal, or 80 gallons in all, so a further addition of 134 gallons could be made to bring up the total to 224 gallons: with constant service the flow would be about 225 gallons, so the 10 gallons of urine would either be diluted with 225 or 214 gallons of clean water.

53. At my request the following experiment was carried out under the orders of Colonel Goodfellow, *V.C.*, R.E.:—On a piece of ground having a natural slope, a raised bed was prepared 7 yards square, and from 12 to 18 inches deep; a carrier pipe was laid at its raised end, and connected with an automatic flush tank: urine diluted in various proportions with clean water, or mixed with

kitchen waste, was discharged on to the bed three times a day; after each discharge the surface was well raked over, and the experiment was continued for 15 days. The quantities discharged are given in the subjoined statement:—

Statement showing the amount of urine, clean water and kitchen water discharged from the 20th November to 4th December 1878, over a plot of prepared ground, 7 yards square, at Wanowree, the discharge being effected by means of a self-acting flush tank 3 times a day.

Poona, 11th December 1878.

Ingredients.	November 1878.										December 1878.				Total.
	20th.	21st.	22nd.	23rd.	24th.	25th.	26th.	27th.	28th.	29th.	30th.	1st.	2nd.	3rd.	4th.	
Urine	10	10	10	10	11·2	11·2	11·2	111·99	11·2	11·2	11·2	111·99	11·2	11·2	111·99	1271·97 Gallons.
Water (clean) ..	21·4	21·4	21·4	21·4	11·2	11·2	11·2	37·33	..	..	..	37·33	..	..	37·33	1303·99 do.
Water (kitchen)..	..	..	..	..	..	.	..	74·66	11·2	11·2	11·2	74·66	11·2	11·2	74·66	783·98 do.

54. It will be seen that the varying proportions were 10 gallons of urine to 21·4 gallons of clean water—equal parts of each—equal parts of urine and kitchen waste—and urine the full amount, clean water one-third, and kitchen waste two-thirds. The results as reported by Colonel Goodfellow were that immediately after each discharge there was "a strong smell," but shortly afterwards "singularly little;" on the 5th day after the experiment ended the plot was turned over, and it was again examined on the 6th "at the hottest time of the day." Although there was a certain amount of very objectionable smell, "it was nothing like so much, or so offensive, as the day urinals now in use give out at all times." He points out that the experiment was a very severe one, *for as much urine, besides kitchen waste, was poured* over *the ground in* 10 *days, as there would be in* 4 *months from a barrack urinal.* After saying it was the test I had suggested, he observes, "and Sanitary Authorities say that such treatment of a piece of ground, not for a fortnight only, but day after day, and year after year for an indefinite period should leave the ground sweet and pure, and there should be neither risk nor nuisance." He adds: "I can only account for such a statement by supposing that all persons' powers of smell are not the same. I do not mean by this to imply that this scientific treatment of sewage is not infinitely better than the method now in use, but that too much should not be looked for: some smell and nuisance there will be, but not so much as with the present system." Now I can safely say that "such treatment of a piece of ground" was never contemplated by Mr. Rawlinson, nor was it suggested by me except by way of experiment. It was never implied that, under the strained conditions of so crucial a test, sewage could be applied to land year after year for an indefinite period, or for the matter of that for a definite period, without creating a nuisance. Nor was it meant that there would be absolute absence of all smell; for in dealing with noxious matters there must perforce be some evidence of their noxious properties. Be it remembered, the urine and kitchen waste were not fresh as they would be with a drainage system: they were the putrid and decomposing collection of 24 hours, purposely undiluted with clean water. And as much urine was put on the ground in 10 days as it would have received in 4 months under ordinary circumstances. These were indeed strained conditions, and yet Colonel Goodfellow says the after smell "was nothing like so much, or so offensive, as the day urinals now in use give off at all times."

55. If removal by gravitation be impracticable, there is no reason why stoneware urinals should not be adopted. Their introduction would obviate the necessity of moving them in and out of verandahs and up and down stairs from upper stories. They are easily cleaned, and they might discharge into one of the swing carts made by Boulton and Paul of Norwich. These are specially suited for India, as they can be worked by the very smallest draught animal, or by hand (*see* Sketch at page 15.)

Sickness amongst European Troops at Cola'ba.

56. For some time past there has been a growing belief amongst the Military authorities that the increasing sickness amongst the Troops stationed at Upper

Colába was chiefly due to defective drainage and the mangrove swamp on the windward foreshore; and in consequence of urgent representations to Government a Committee was ordered to inquire into "the cause of the unhealthiness of that portion of Colába occupied by the Troops," to consider "whether the condition of the swamp and mangrove is the chief cause of the fever which affects the Troops, and what steps should be taken for removing this source of malaria," and further to consider "what is necessary to be done in respect to drainage, and what, if any, of the quarters at Colába should be abandoned." The Brigadier General, the Superintending Engineer, and myself, were the Members of the Committee, and the subject was very carefully investigated, and we heard and read the opinions of those officers who had special facilities for forming opinions.

57. As regards "the cause of the unhealthiness" there are many and varied causes, and it would be difficult to determine their relative values. There is presumptive evidence that "the swamp and mangrove" exert a noxious influence, but the data are not sufficiently reliable for affirming that they are chief causes, nor can it be said that any one barrack is more unhealthy than another.

58. There is, however, very conclusive proof that during the past 10 years there has been a most marked increase in the number of admissions from fever, and that the majority of them are in the latter half of the year, notably from August to September inclusive. Returns in the Office of the Surgeon General, extending from 1868 to 1878, show that on a mean strength of 497, the admissions from fever alone were 90·5 per cent. In 1868 their percentum ratio to average strength was 47·3, and in 1878 it was 169·2.

Years.	Average Strength.	Number of Admissions from Fever.	Ratio per cent. of average Strength.
1868	543	257	47·3
1869	526	132	25·1
1870	400	360	90·0
1871	475	172	36·2
1872	463	496	107·1
1873	484	276	57·0
1874	508	327	64·4
1875	546	649	118·9
1876	536	601	112·1
1877	459	804	175·2
1878	529	858	169·2
Mean	497	448	90·5

59. By returns from the Garrison Hospital for the 3 years from 1876 to 1878, the total of fever admissions from January to June was 736, and from July to December it was 1,725; the means for the period being respectively 224 and 573, or a mean strength of 563. During those 3 years the annual number of fever admissions increased from 610 to 1,049, and the period mean is 817. Similarly the percentum ratio to average strength has risen from 101·79 to 184·43, the mean being 145·79.

Statement showing for the undermentioned years the Monthly Admissions from Fever, the mean annual strength, the total of yearly Admissions, and the ratio per cent. of average strength amongst the Troops stationed at Colába.

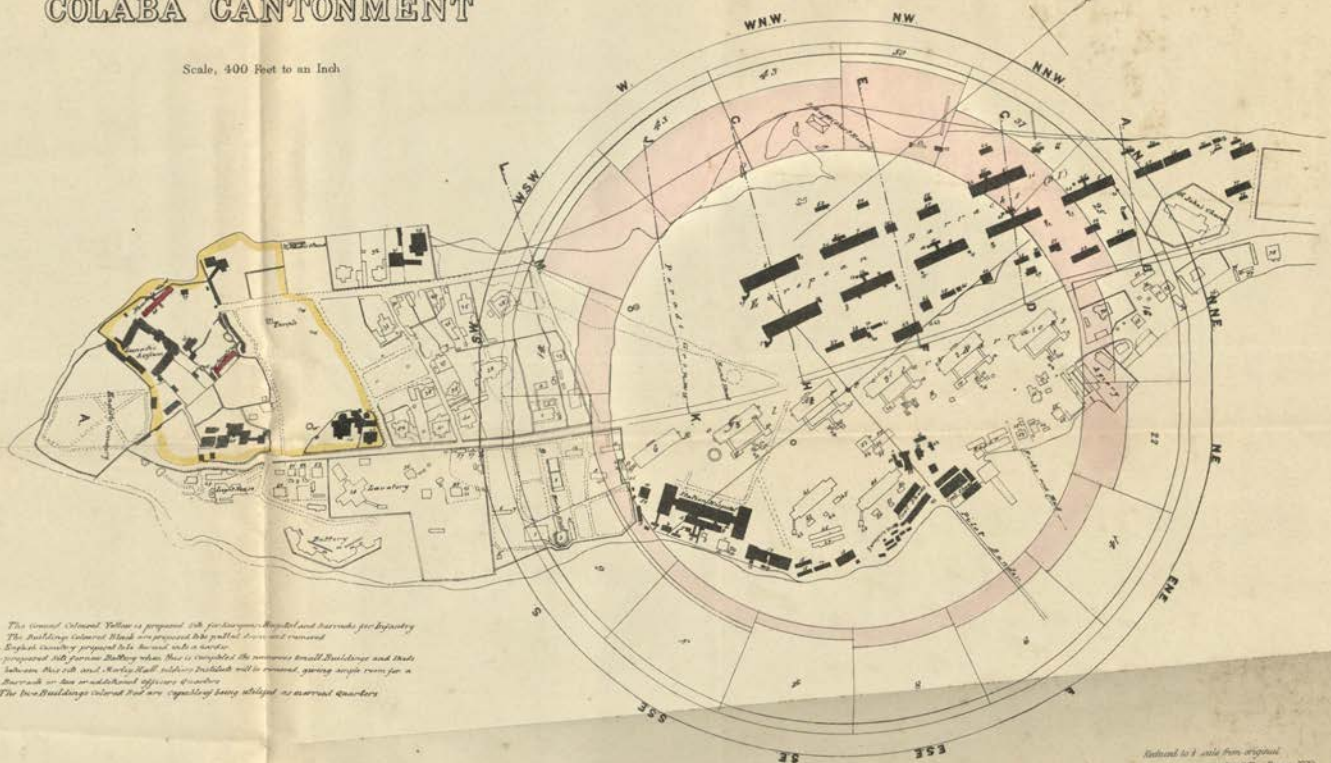
Years.	Admissions in												Mean annual Strength.	No. of Admissions per annum.	Ratio per cent. of average Strength.	Remarks.
	January.	February.	March.	April.	May	June.	July.	August.	September.	October.	November.	December.				
1876.. ..	28	20	19	13	18	39	49	36	59	142	126	61	599·25	610	101·79	Obtained from Garrison Hospital.
1877.. ..	42	18	9	42	62	49	55	72	144	124	104	81	523·83	792	151·15	
1878.. ..	53	76	62	46	85	55	57	141	169	138	141	26	568·75	1,049	184·43	
Total ..	123	114	90	101	165	143	161	249	372	404	371	168	1691·83	2,451	437·37	
Mean ..	41	38	30	33	55	47	53	83	124	134	123	56	563·94	817	145·79	

PLAN

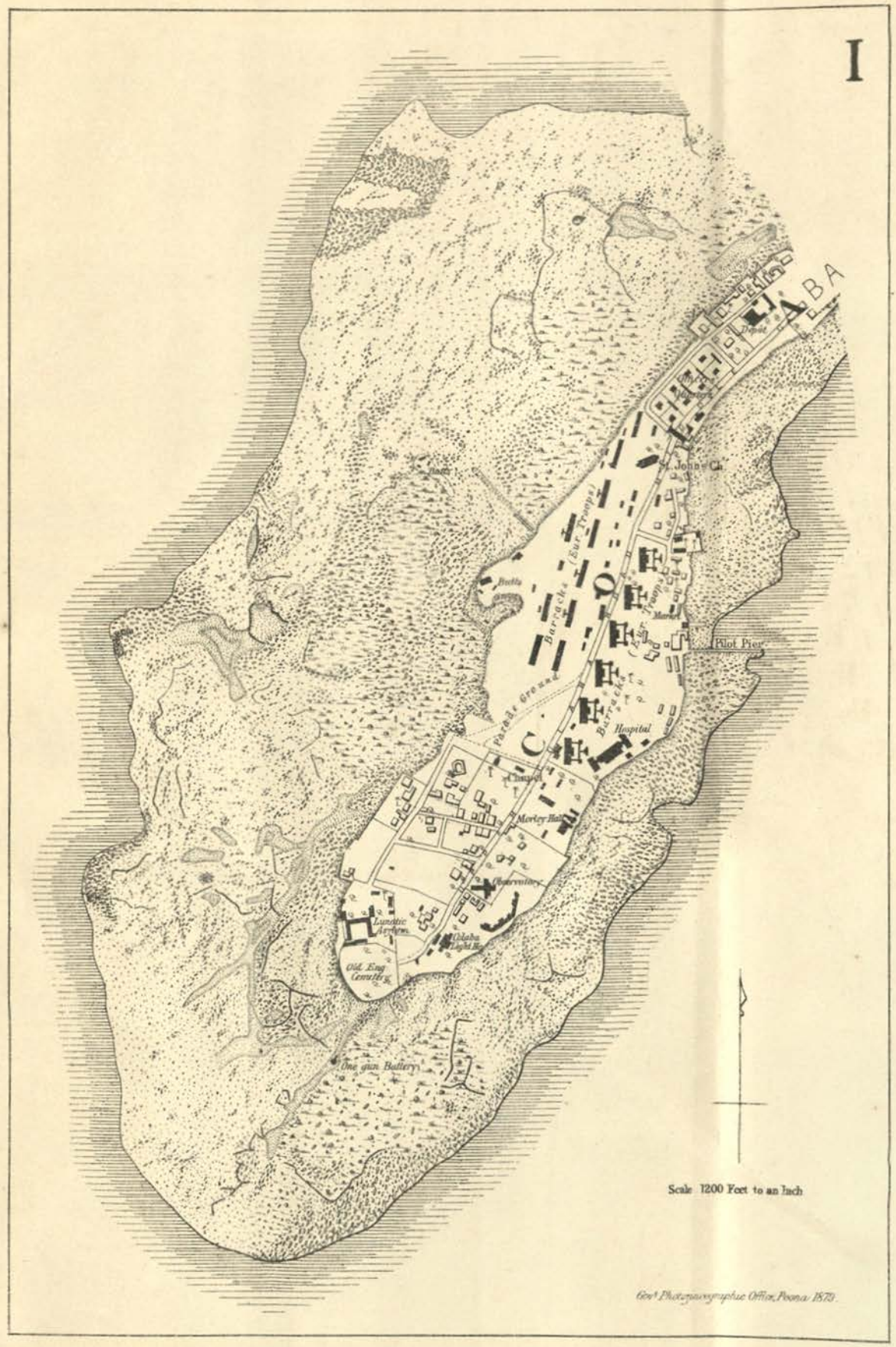
of the

COLABA CANTONMENT

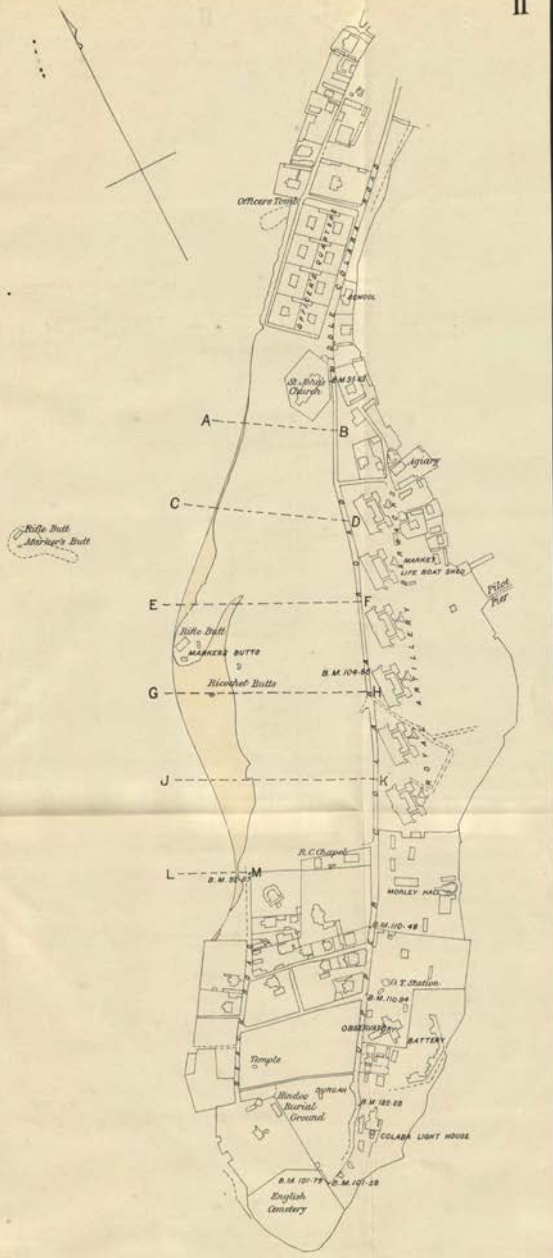
Scale, 400 Feet to an Inch


WNW.
NW
NNW.
W
WSW.
SW
NNE
NE
ENE
E
ESE
SE
SSE
S
Parade Ground
Lawrence Asylum
Church
Bakery
Hospital
Barracks
Gaol
Gallows
Battery
Quarters
Barracks
Quarters
Barracks
Quarters
Barracks

I



ABA
Depot
St. John's Ch.
Barracks (Eur. Troops)
Barracks (Eur. Troops)
Pilot Pier
Parade Ground
Hospital
Chapel
Morley Hall
Observatory
Lunatic Asylum
Old Eng. Cemetery
One gun Battery
Scale 1200 Feet to an Inch
Genl Photozincographic Office, Poona 1879.

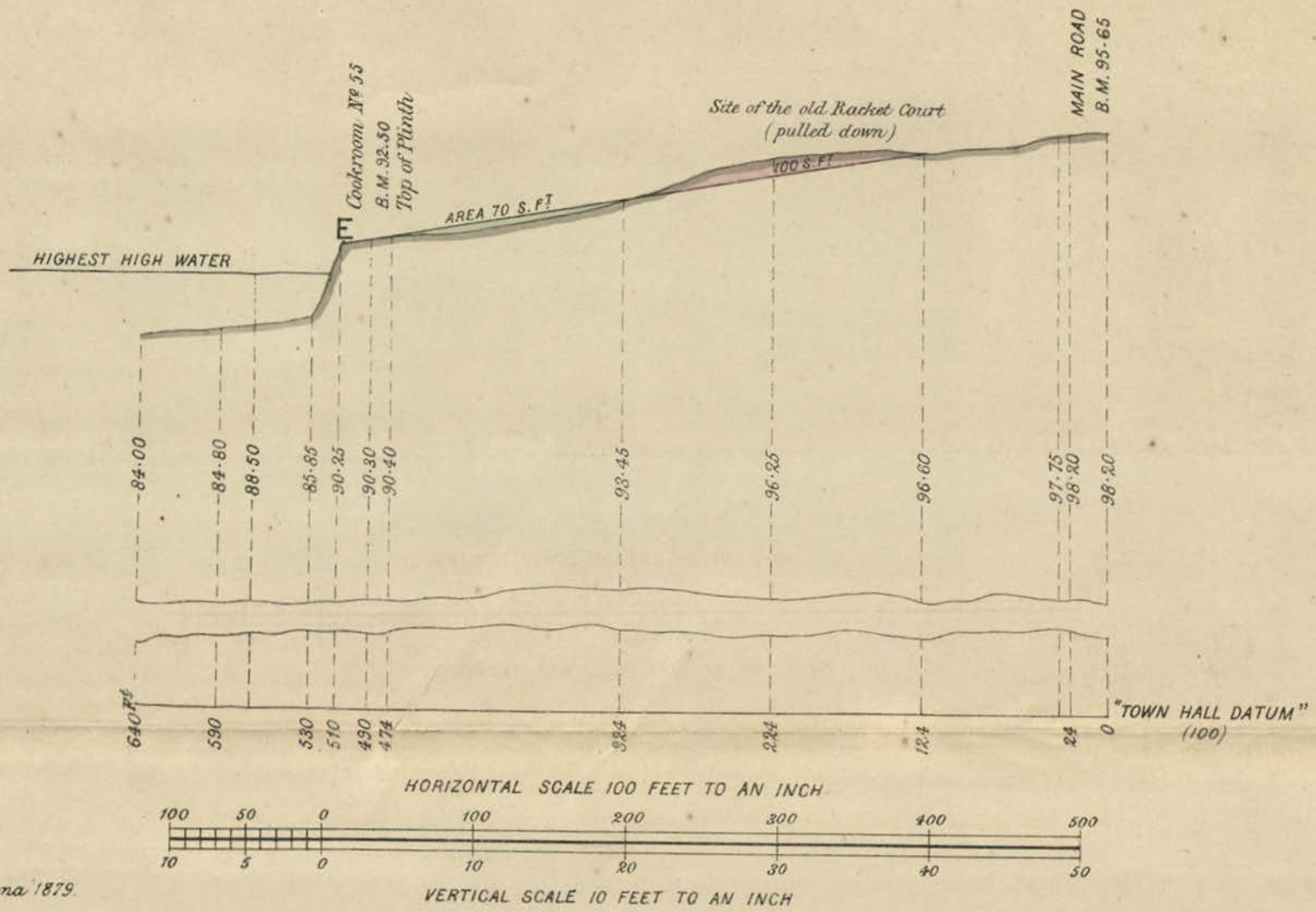


Litho. Govt. Photozinco. Office, Poona 1873.

One Gun Battery

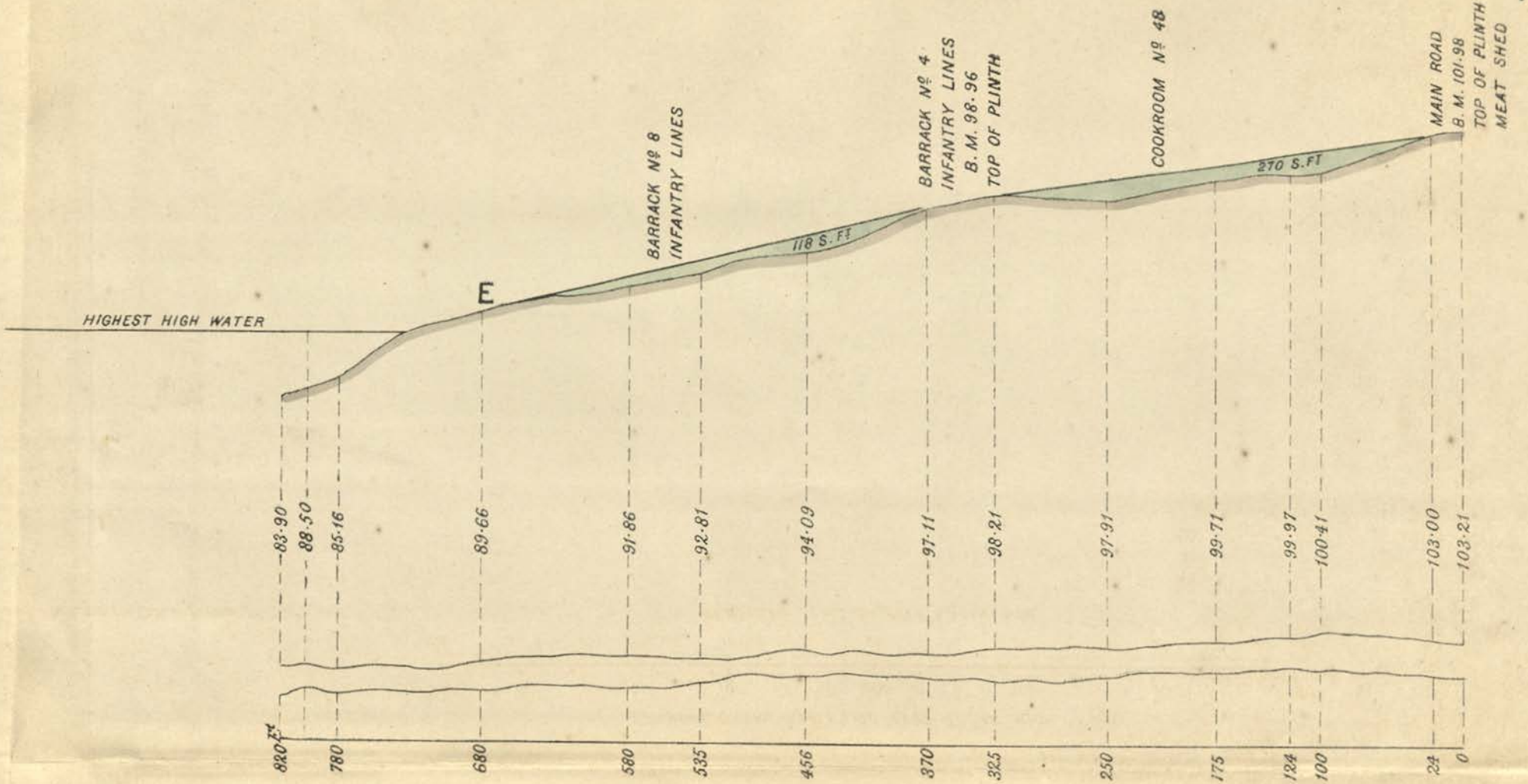
SECTION ON A. B.

III



Litho. Govt Photozinco: Office Poona 1879.

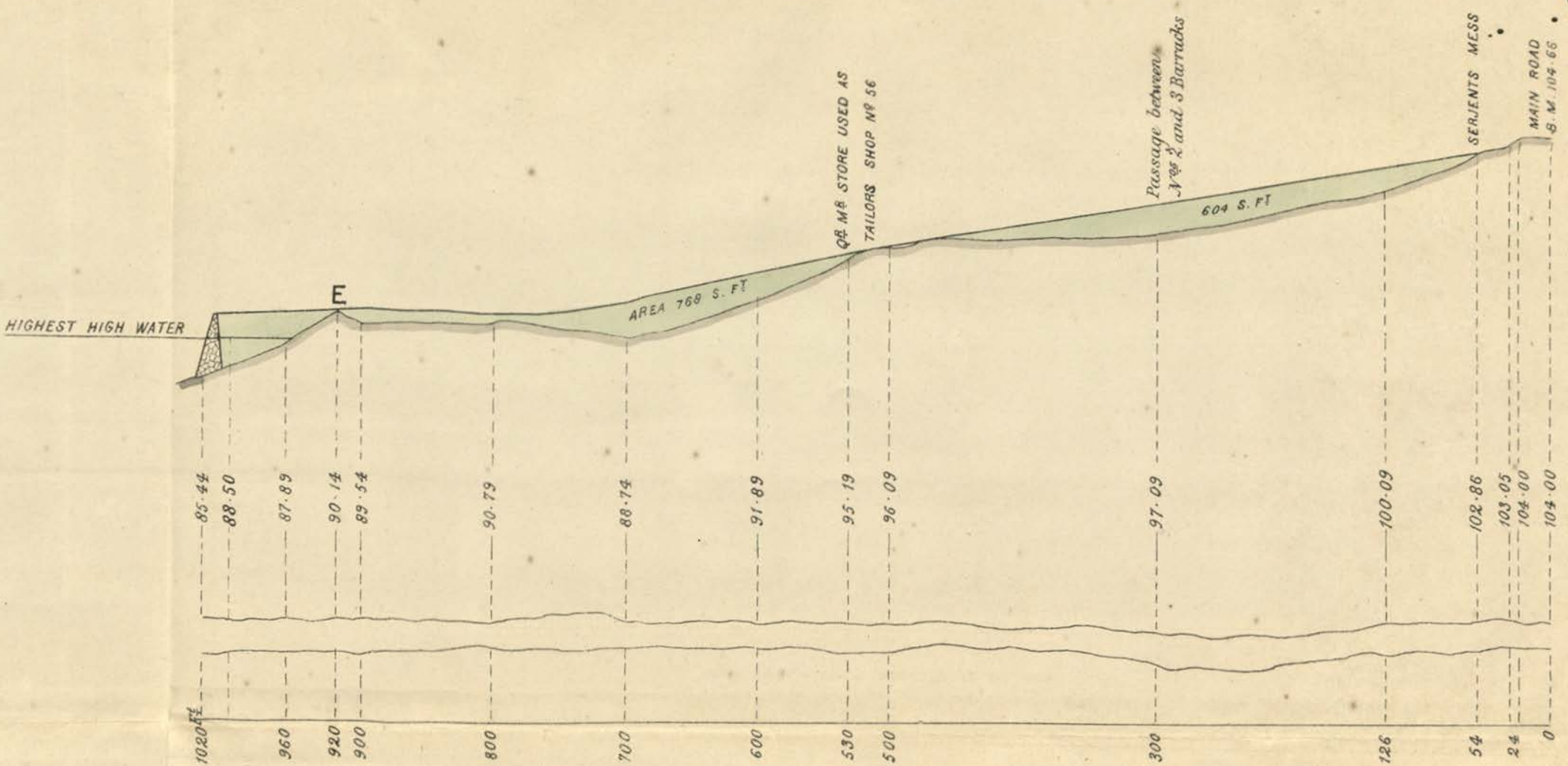
SECTION ON C. D.



Litho. Govt Photozinco: Office Poona 1879.

SECTION ON E. F.

V



HORIZONTAL SCALE 100 FEET TO AN INCH

100 50 0 100 200 300 400 500

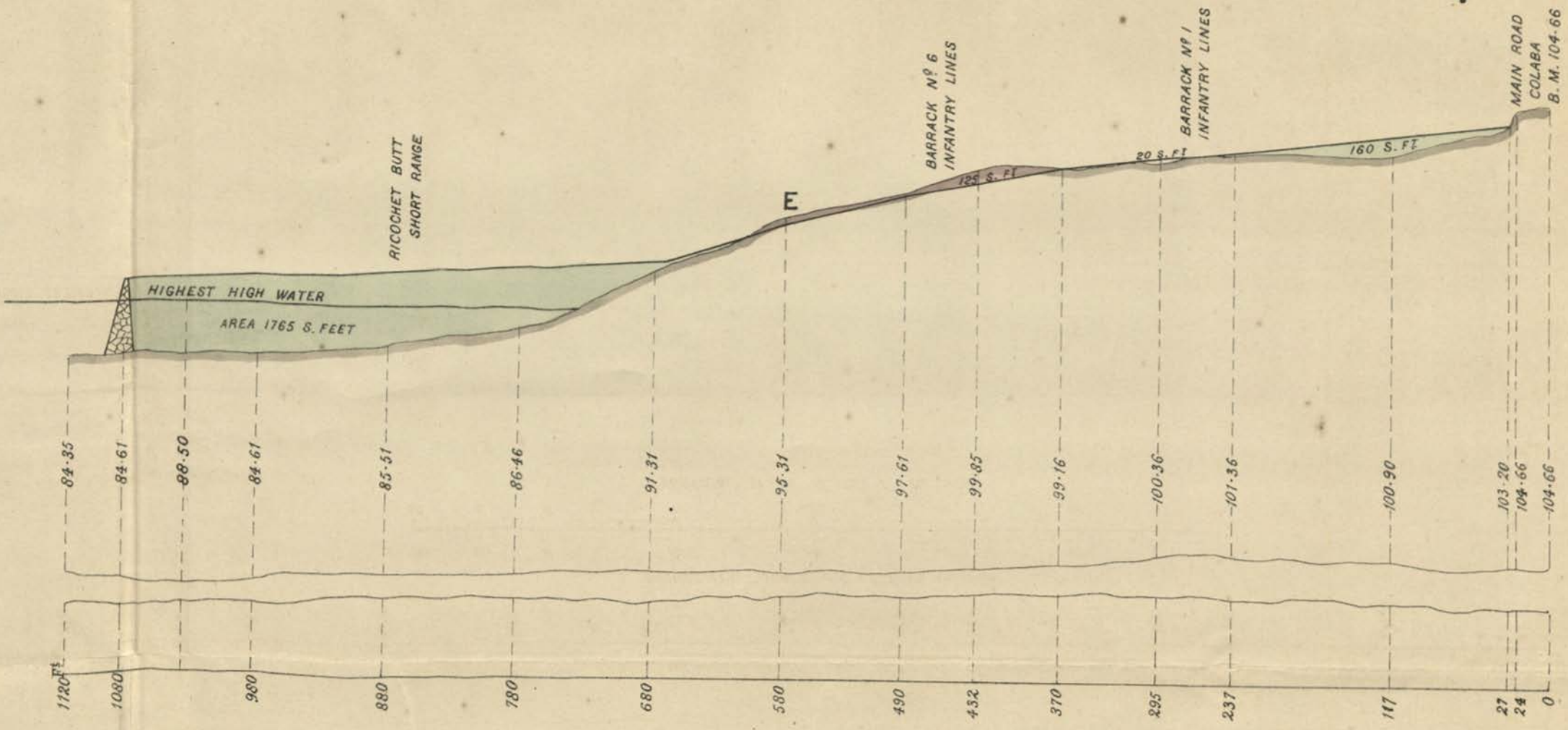
10 5 0 10 20 30 40 50

VERTICAL SCALE 10 FEET TO AN INCH

Litho. Govt Photozinco: Office Poona 1879

SECTION ON G. H.

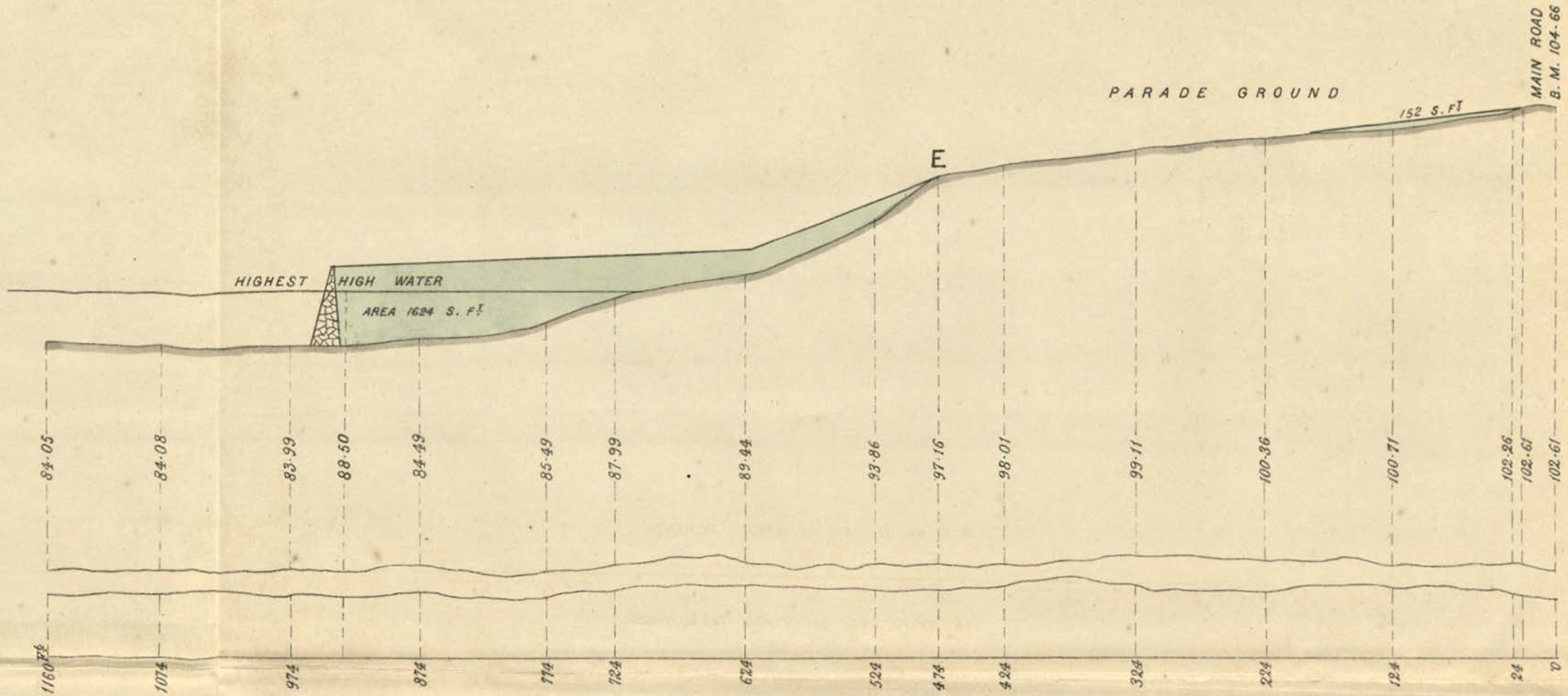
VI



Litho. Govt Photozinco: Office, Poona 1879.

SECTION ON J. K.

VII.



HORIZONTAL SCALE 100 FEET TO AN INCH

100 50 0 100 200 300 400 500

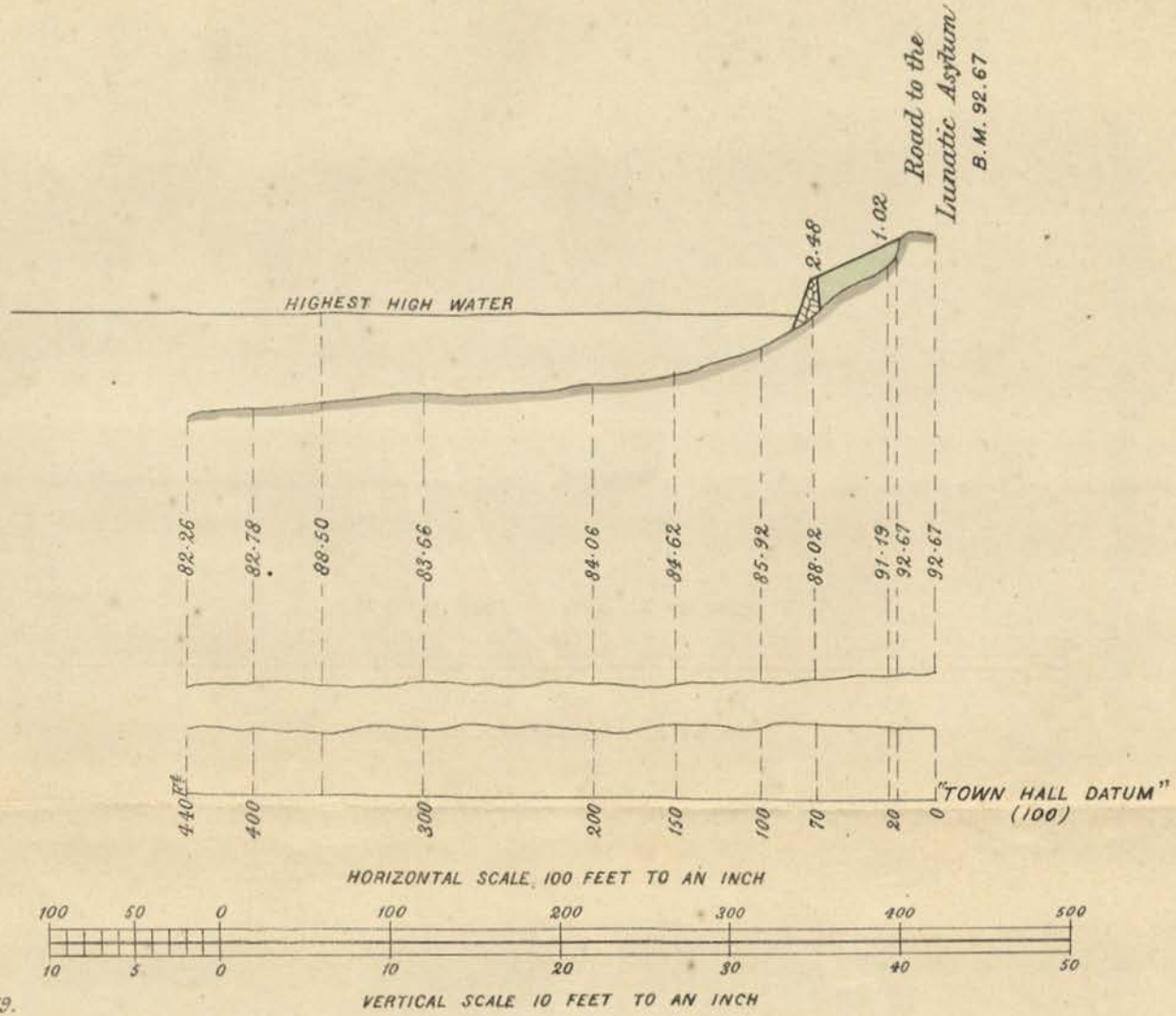
10 5 0 10 20 30 40 50

VERTICAL SCALE 10 FEET TO AN INCH

Litho. Govt Photozinco: Office Poona 1879.

SECTION ON L. M.

VIII



Litho. Govt Photozinco: Office Poona 1879.

60. The tracing of Colába—marked 1—shows 166·3 acres of land, and 651·10 of foreshore, a proportion of 1 to 3·93. The greater portion of the western foreshore is covered with mangrove bushes, and is exposed at low tides. This mangrove is extending, and there are those who say that within its area there is an increasing deposit of fœtid black mud. It may be so, but analysis shows that the amount of organic matter in it is very small. At the same time it is a fact that without intermission sewage is discharged into Back Bay, and that the set is in the direction of the foreshore.

61. The following is the analysis of a sample of soil from the mangrove swamp at Upper Colába to the west of the Roman Catholic Chapel —

Moisture	18·7 per cent.
Loss on incineration...	8·95 do.
Carbonic acid	4·67 do.

On treating 10 grammes of the soil with a litre of distilled water, and distilling according to Wanklyn and Chapman's process, it yielded—

Free Ammonia	1·86 per cent. of the soil.
Albumenoid Ammonia	0·72 ditto.

From the results of the distillation, and the percentage of the loss on incineration, after deducting the amount of carbonic acid, it will be seen that the amount of organic matter is very small.

The analysis was made by Assistant Surgeon DeSouza, the Analyst attached to the Sanitary Department.

62. The wind chart projected on the tracing shows for 8 years the mean duration and direction of the wind from each principal point of the compass. For the greater part of the year it ranges from N. to W. S. W., and it will be seen that within these limits, from whatever point it comes, it must pass over the mangrove before it reaches the line of Barracks.

63. A notably insanitary condition is the state of the ground in and about the Barracks themselves, and beyond them to the foreshore. During the monsoon the whole area is water logged, and the raised foot-paths, then indispensable, are so many dykes which retard natural drainage. A cross section of the ground shows a rise at the western shore line, so here again is another barrier. Though suspicion attaches to the foreshore and the mangrove, the ground within the shore line also excites distrust; and being nearer the barracks there is perhaps more urgent need to improve its condition.

64. As regards drainage the Corporation has already commenced a general scheme which eventually will be extended to Colába; so local proposals must necessarily be subordinated to the larger measure.

65. As regards those quarters which should be abandoned, they are shown in black on the appended tracing. The old Barracks were condemned many years ago, and no reasonable expenditure would sufficiently improve them. The Hospital too is in every way objectionable, and in no way suitable; and the same may be said of all the subsidiary buildings. The Followers' Huts are disgraceful. They should be replaced by blocks on the plan of those built by Mr. Ormiston at Argyll Road on the Elphinstone Land Estate. The Bázár should also be remodelled, and no houses should be built in it except of an approved class. No mat huts should be allowed anywhere as permanent dwellings.

66. Suitable sites for Barracks and Hospital and all subsidiary buildings may be found south of the Roman Catholic Chapel, and the boundaries are shown in yellow on the tracing which has the wind chart. The nature of all the ground may be seen in the accompanying six cross sections. The adoption of this site would necessitate the removal of the Lunatic Asylum, but as this has been urged for many years past, there can be no hesitation in again suggesting it.

67. The wind chart shows the points within which the foreshore should be reclaimed, but the cost is prohibitive. It is suggested, however, that the shore line should be filled in as shown on Plan II., and that the ground should be

sloped from the main road to this line. The sections will show what is required, and the line indicated must of course be considered as approximate. It would be better to extend the shore line to high-water mark. A further suggestion was that all the fishing bays should be resumed. The following is the probable cost of the improvements recommended to be carried out, and it is to be regretted that, on financial grounds, the proposals could not be entertained :—

For new Barracks	...	Rs. 5,00,000
„ „ Guard-room and Cells	...	38,000
„ „ Hospital	...	1,82,000
„ levelling and sloping	...	1,80,000
	Total	9,00,000

68. As Government fully recognised the necessity for improving the condition at Colába, and regretted that, in the face of recent orders for reduction of expenditure, no application for a grant could be made "just now," it is hoped that, when the opportunity offers, so important a matter may again be considered.

69. In connection with this question of sickness amongst the Troops there is just one point to which I would solicit attention, for it has a special application. It is a mistake to suppose that the death-rate of a District is, by itself, an index of its sanitary condition, and unfortunately it is a mistake that has crept into high places, and is very wide spread. It has been pointed out by Dr. Rumsey that "the mere number of deaths occurring in any locality bears no constant, or even approximate ratio to the real amount of unhealthiness existing there;" and Mr. Neison has shown how "the highest ratio of sickness is sometimes found associated with a favourable death-rate." If proof of this were wanted, we have it at Colába. There, in the Military Cantonment, the percentum ratio of fever admissions to strength has risen in 11 years from 47·3 to 169·2. During the last 3 years, on a mean annual strength of 563·94, the mean annual number of fever admissions has been 817, and their mean percentum ratio to strength 145·79. Out of 3,951 cases treated only 2 ended fatally, and the death-rate is expressed by a decimal, it is 0·66. As Dr. Rumsey says it cannot be too clearly understood that the number of deaths expresses the *intensity* of disease, its *amount* must be determined by antecedent conditions, and its *nature* and *causes* can only be learnt from medical records.

Famine Relief.

70. On the 17th April 1879 I was summoned to Government House by telegram, and directed by His Excellency the Governor to organize, with all despatch, a special establishment for a special and thorough inspection of the Eastern Deccan Districts. It was apprehended that, in those Districts, there would be more or less distress, and perhaps worse, owing to a partial failure of the food supply; and, coming after one year of famine and one of scarcity, it was feared that the strain might be more than the people could bear, and that under its tension the sickness and mortality might be excessive. His Excellency was anxious to know what was the physical condition of the people in the Eastern Tálukas of Poona and Sátára, in Sholápur, and in the Eastern portions of Kaládgi and Dhárwár; and I was to secure for temporary service such skilled and subordinate agency as was procurable. On the 19th* I was again summoned, and I was then able to say that the necessary establishment was forthcoming. On that occasion His Excellency drafted the minute published under Government Resolution in the Public Works Department (Famine), No. 1147 P—230, dated 22nd April 1879, and in a subsequent Resolution, on the following day, the subjoined establishment was detailed and sanctioned :—

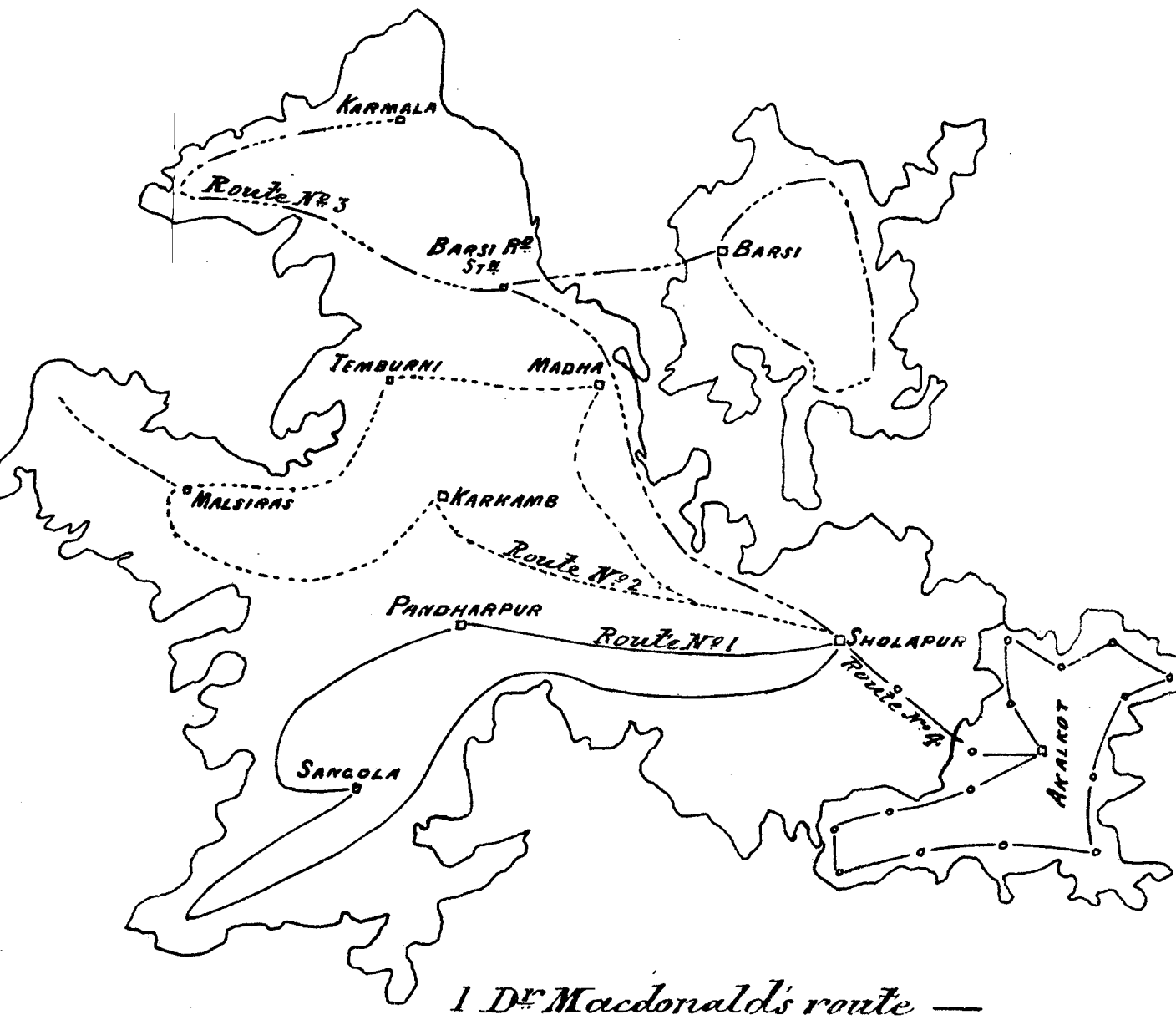
* April.

* Dr. Macdonald	...	... Rs. 700 per mensem.
Dr. Ballantine...	...	... „ 600 „ „
† Reverend Dr. Fairbank...	...	... „ 600 „ „

Map

Showing Inspection routes in the

Sholapore Collectorate



1 Dr Macdonald's route ——

2 Dr Ballantine's route .....

3 Dr Fairbank's route .—.—.

4 Dr Mackellar's route —o—

Scale of 16 Miles to an Inch

16 14 12 10 8 6 4 2 0 16 32 49 Miles

Govt Photozincographic Office. Poona, 1880.

Native Assistants.

B. V. Rajwadi...	... „	100	per mensem.
B. P. Phadke	... „	100	„ „
M. R. Sangle	... „	100	„ „

Medical Subordinates.

† N. V. Moodliar, L.M. and S. ...	... „	225	„ „
G. V. Khote, L.M. and S. ...	... „	225	„ „
† J. P. Nanavatti	... „	225	„ „
2 Clerks at Rs. 50 each	... „	100	„ „
Batta for 4 peons at Rs. 2 each ...	... „	8	„ „
Contingencies	... „	17	„ „
		Rs. 3,000	per mensem.

* Employed independently during Famine of 1877.
† Employed by Government „ „ „

The three European gentlemen were Medical Missionaries of long standing and experience, and were peculiarly fitted to conduct an inquiry such as that indicated, and the Native Assistants had been associated with them: the Medical Subordinates had been educated at Grant Medical College, and two of them were Licentiates in Medicine and Surgery.

71. The inspections and the general measures for relief were very similar throughout the whole of what may be termed the famine area, and as the work in the Sholápur District came more immediately under my own supervision, a brief account of it is given, and it may be assumed that it was much the same elsewhere.

72. The establishment, as detailed, mustered at Sholápur on the 29th.* Mr. Spry, the Collector, came in the same evening, and on the following morning we met, and projected the subjoined routes:—

* April.

Route No. 1.—Dr. Macdonald.—South-west through Pandharpur to Sángola diverging right and left. From Sángola short lines in different directions returning by a somewhat parallel route more to the south. This would take him over the ground traversed by him during the famine of 1877, and he could contrast the present state of the country and the physical condition of the people with what they were when he saw them before.

Route No. 2.—Dr. Ballantine.—West through Mohol and Karkhamb to Málsiras, returning by Timburni and Mareh.

Route No. 3.—Dr. Fairbank.—North-west through Bársi Road to Karmála, returning through the Bársi Táluka.

73. Dr. Mackellar, a civil practitioner from Kolhápur, joined in May, and took the villages in the Akalkot State, and Dr. Parker, the Deputy Sanitary Commissioner in the Northern Deccan, was summoned to Sholápur, and took the Railway relief work, extending towards Bijápur and various other places. It will be seen by the map how thoroughly the routes traversed the District, and such were the inspections that ere long the want and the misery which had been so broadcast were collected at those places where provision had been made to relieve them. When Sholápur was thoroughly inspected, routes were projected for the Kaládgi Districts as far as the Krishna. Dr. Mackellar was to cross over from Akalkot to Indi, and then go south by Támba and Hippargi to Muddebihál; Dr. Macdonald was to go through Halsingi, Indi, Almeleh, Sindgi, Kalkeri, Tombagi, and Talikote to Muddebihál; Dr. Ballantine was to make for Bijpáur, and then go through Mangoli, Bagevádi, and Nergundi; Dr. Fairbank was to go by Churchun, and to Bijápur by Hoonoor, and then south to Kolhár. These routes also cover the country as far as the Krishna, and they were followed to the letter until the rains set in, and made it impossible to leave the main lines of communication. The difficulty of moving during the rains in a black soil country may be inferred from the fact that on one occasion Dr. Macdonald was out for 11 hours, and his progress was only 7 miles! This gentleman was unfortunately knocked over by sunstroke at

See Government Resolution in the Public Works Department, No. 161 P—275, dated 17th May 1879.

the Bhima, and had to be sent back to Bombay, but up to the time of his illness he had made his inspections most thoroughly and conscientiously. Dr. Fairbank too, on returning to Sholápur, went back to his mission work at Ahmednagar, and Dr. Ballantine then moved over into the Poona Districts, and inspected the Khed, Indápur, and Bhimthadi Tálukas. Dr. Mackellar remained at Sholápur, and visited the different relief camps periodically. The Mán and Khatao Tálukas of the Sátára Districts were also inspected by Dr. Greany, the Deputy Sanitary Commissioner of the Southern Deccan. The medical subordinates were posted to the relief camps at Sholápur, Bársi and Pandharpur, and an officer was also placed in charge. Minor camps were formed at other places, and in the Kaládgi, Sátára, and Poona Districts also, but none of them assumed the proportions of those named. In fact the extent of the distress and the measures for its relief may best be described by speaking of what occurred in the Sholápur Districts, remembering always that much the same was done everywhere.

74. At Sholápur then Mr. Spry was the Collector, and during the famine of 1877 he had occupied a similar post at Kaládgi; and brought with him to his new District the priceless experience of that time of trial. From first to last I had the benefit of his local knowledge of his help as head of the District, and of his experience based on past practice. The local measures were somewhat similar to those which obtained in 1877, but this time village relief was not given. At certain points large relief camps were formed to which the District Officers, the Circle Inspectors, and the Special Inspectors were empowered to forward all who were in want, furnishing them with food, and when necessary with carriage. At other points there were opened great relief works where there was certain employment, and a fixed wage for all who chose to accept it. To these works the people were passed by ticket, and on them they were classed for light or for ordinary labour, and not only was the labour paid for, but they were hutted, and gratuitous relief was given to those of their relatives who accompanied them, and who from age or infirmity were unable to work. Those again received extra rations, or an equivalent, who had more children than could be supported upon the wages earned.

75. The statement on the next page gives the numbers employed on the several relief works and those charitably relieved. The extent of the operations may be inferred from the fact that the total, from 3rd May 1879 to 3rd January 1880, was 1,483,180. The numbers charitably relieved were 381,829.

76. The next statement gives the admissions and deaths and their percentages in the Sholápur Relief Camp:—

Statement of Admissions and Deaths and their percentages in the Famine Relief Camp at Sholápur.

Months.	Remaining on the first day of the month.	Admitted during the month.	Discharged.	Died.	Remaining on the last day of the month.	Percentage of	
						Discharge to Admissions.	Deaths to Admissions.
May 1879	802	1,297	663	103	1,333	51·12	7·94
June ,,	1,333	2,129	810	392	2,260	38·05	18·41
July ,,	2,260	3,267	1,429	645	3,453	43·74	19·74
August ,,	3,453	4,583	3,760	936	3,340	82·04	20·42
September ,,	3,340	2,319	2,117	777	2,765	91·29	33·50
October ,,	2,765	2,236	2,118	715	2,168	94·47	31·98
November ,,	2,168	746	871	391	1,652	116·75	52·55
December ,,	1,652	465	549	175	1,393	118·06	37·64

77. A very valuable paper given *verbatim* is by Dr. Mackellar, a trained Pathologist, who had special opportunities for observing the condition of those in our Relief Camps. He also made such *post-mortem* examinations as could be made under the circumstances; and, amongst other appearances, has noted that, although he found ulceration almost from lips to rectum, there was none in the small intestines.

The following statements are based upon observations made in the different Relief Camps in the Sholápur Collectorate, during a period of seven months, and upon considerably more than a hundred *post-mortem* examinations.

Statement of Persons employed on Relief works, and of those charitably relieved in the undermentioned Collectorates for the undermentioned weeks.

Weeks ending.	POONA.				SHOLA'PUR.				SA'TA'RA.		DHA'RWA'R.		KALA'DGI.					BROACH.		AHMEDABAD.				KA'THIA'WA'R.		KOLHA'PUR.		TOTAL OF PERSONS.	
	On relief works.				On relief works.				On relief works.		On relief works		On relief works.					On relief works		On relief works.				On relief works.		On relief works			
	Bhadalwadi Tank.	Nira Canal.	Local works.	Charitably relieved.*	Ashti Tank.	B. E. D. S. Railway.	Local works.	Charitably relieved.	Mhasavad Tank.	Charitably relieved.	Doni Tank.	Charitably relieved.	B. E. D. S. Railway.	Begum Tank.	Muchkundi Tank.	Local works.	Charitably relieved.		Charitably relieved.	Kharicut.	Bhadoor River improvement.	Dholora works.	Charitably relieved.	Bhávnagar Railway.	Charitably relieved.		Charitably relieved.	On relief works.	Charitably relieved.
3rd May 1879 ..	1,728	3,531	..	..	711	..	..	1,006	2,201	..	177	..	..	..	717	..	..	..	..	63	..	..	..	1,500	..	..	..	10,628	1,006
10th „ „ ..	1,944	4,162	..	..	936	..	104	1,373	3,149	..	188	319	2,034	134	830	..	165	..	..	395	522	900	..	2,500	..	..	91	17,698	1,948
17th „ „ ..	1,849	5,106	..	..	1,078	..	2,539	2,129	4,144	198	99	817	3,594	423	916	..	417	..	134	838	567	..	..	3,600	..	..	..	24,748	3,695
24th „ „ ..	1,913	6,351	..	..	1,364	..	1,117	3,981	5,406	256	223	238	4,588	652	932	1,952	541	..	194	1,025	544	..	..	4,000	..	..	..	30,067	5,210
31st „ „ ..	1,919	7,530	..	..	1,527	..	1,220	5,156	6,424	390	102	189	4,448	683	879	2,254	437	..	174	1,201	836	..	..	4,000	..	..	..	33,428	6,316
7th June „ ..	1,883	8,535	..	142	1,220	2,744	1,091	6,395	7,325	244	185	759	1,956	812	677	2,131	518	..	119	691	1,381	..	..	4,000	..	..	..	35,231	8,177
14th „ „ ..	1,850	9,636	..	243	1,375	6,618	..	7,655	7,236	323	..	252	..	2,768	768	..	592	..	94	1,456	759	..	..	..	..	..	..	32,166	9,159
21st „ „ ..	1,803	10,133	..	393	1,648	3,756	283	7,875	7,006	309	136	288	2,255	994	722	..	683	..	89	1,308	1,292	..	..	..	..	..	..	31,336	9,637
28th „ „ ..	1,698	10,471	..	246	1,831	5,798	..	8,400	6,727	283	136	308	2,202	860	588	..	774	..	..	1,030	2,017	..	..	7,000	..	..	..	40,358	10,011
5th July „ ..	1,624	10,380	..	238	2,087	6,400	..	8,943	7,139	289	102	300	2,500	815	270	..	971	..	63	557	2,357	..	..	6,000	..	..	..	40,231	10,804
12th „ „ ..	1,557	10,339	..	216	1,851	6,303	1,549	9,122	7,005	311	74	319	2,936	654	673	..	1,029	..	45	68	2,523	..	..	8,000	..	..	..	43,530	11,012
19th „ „ ..	1,451	10,484	..	242	2,037	8,020	392	9,619	7,226	346	132	379	3,480	576	762	..	1,106	..	39	225	3,196	..	..	12,000	..	..	..	49,941	11,731
26th „ „ ..	1,369	10,941	..	285	2,406	6,700	1,496	9,942	6,801	322	167	288	4,400	348	790	..	1,130	..	39	297	3,567	..	..	15,500	..	..	..	54,782	12,006
2nd August 1879 ..	1,291	13,136	..	252	2,433	7,300	1,025	9,891	6,293	266	99	362	4,800	242	608	..	912	..	35	325	3,540	..	..	18,000	..	..	..	59,092	11,718
9th „ „ ..	1,255	13,018	..	222	2,675	6,300	1,984	11,051	5,303	237	162	373	4,900	234	628	..	1,044	..	24	348	2,027	..	..	12,600	..	..	..	51,434	12,951
16th „ „ ..	1,181	12,985	882	225	1,983	5,100	2,537	13,443	3,979	201	128	380	4,300	227	655	..	1,000	..	21	270	1,166	..	..	11,000	..	..	..	47,193	15,270
23rd „ „ ..	1,040	11,133	57	222	2,194	4,800	2,671	14,917	3,598	217	..	371	7,500	238	629	..	971	..	15	228	..	..	..	10,200	..	..	..	44,288	16,713
30th „ „ ..	856	11,300	..	198	1,879	3,600	2,500	15,602	3,368	166	..	431	7,400	228	617	..	922	..	9	251	..	..	..	12,500	..	..	..	44,499	17,323
6th September 1879.	792	9,941	..	183	1,859	3,500	..	13,470	3,348	153	..	435	6,900	275	495	..	967	..	9	200	..	..	..	11,400	..	..	..	38,710	15,217
13th „ „ ..	742	9,444	..	146	1,995	2,600	1,750	14,889	3,034	136	..	365	6,400	264	189	769	1,004	..	9	275	..	..	..	9,100	..	..	..	36,863	10,549
20th „ „ ..	709	8,215	..	148	1,762	2,600	1,111	14,330	3,037	121	..	306	6,200	210	233	..	1,004	..	9	333	..	..	..	10,200	..	..	..	34,610	15,918
27th „ „ ..	698	7,175	..	161	1,697	2,400	703	12,596	3,039	129	..	257	6,100	207	277	..	987	..	9	256	..	..	..	10,000	..	..	..	32,552	14,129
4th October 1879 ..	689	6,798	..	149	1,639	2,500	1,271	12,431	2,807	127	..	222	6,300	281	263	..	983	..	6	256	..	..	..	9,500	..	..	..	32,304	13,918
11th „ „ ..	688	5,808	180	136	1,854	1,900	1,270	12,480	2,732	137	..	172	5,500	305	233	..	1,028	..	..	131	..	..	..	7,500	..	..	..	28,101	13,953
18th „ „ ..	677	5,578	..	112	1,895	1,600	901	11,590	2,327	95	..	191	5,400	256	232	..	1,085	..	..	87	..	..	..	5,400	..	..	..	24,353	13,073
25th „ „ ..	660	5,331	..	29	2,089	1,300	852	10,873	1,825	92	..	172	5,100	234	244	..	1,010	..	5	..	..	..	..	3,500	..	..	..	21,135	12,181
1st November 1879.	637	4,973	..	98	1,983	1,300	746	10,329	1,714	84	..	143	5,100	203	251	..	1,010	..	2	..	..	..	..	2,000	..	..	..	18,906	11,606
8th „ „ ..	651	5,422	82	75	1,897	1,300	727	10,175	1,715	84	..	111	5,100	224	233	..	835	..	2	..	..	..	..	1,150	..	..	..	18,501	11,282
15th „ „ ..	646	5,897	..	†75	1,499	†393	534	9,521	1,738	47	..	110	†5,588	228	244	..	832	..	..	..	..	..	..	1,250	..	..	..	18,017	10,585
22nd „ „ ..	615	†5,897	..	76	†1,499	267	†534	†9,521	1,836	46	..	562	5,429	251	160	..	54	..	2	..	..	..	..	†1,250	..	..	..	17,738	10,261
29th „ „ ..	606	5,628	..	234	1,352	171	183	8,530	1,886	40	..	519	5,890	234	136	..	†751	..	..	..	..	..	..	2,300	..	..	..	18,286	10,074
6th December „ ..	608	5,239	..	232	1,310	217	93	7,844	1,862	43	..	458	5,938	270	160	..	†547	..	1	..	..	..	..	..	..	..	..	15,697	9,125
13th „ „ ..	569	5,257	..	235	1,424	154	150	7,020	1,932	41	..	404	5,085	304	165	..	§341	..	2	..	..	..	..	..	..	..	..	15,040	8,043
20th „ „ ..	563	5,055	..	250	157	108	173	7,135	2,005	40	..	353	4,660	383	91	..	¶314	..	1	..	..	..	..	..	..	..	..	13,195	8,093
27th „ „ ..	551	5,251	..	224	131	108	..	5,534	1,914	47	..	259	4,674	479	16	..	282	..	..	..	..	..	..	..	..	..	..	13 124	6,346
3rd January 1880 ..	544	5,346	..	246	128	86	..	5,999	2,091	45	..	91	4,294	430	16	..	283	..	..	..	..	..	..	..	..	..	..	12,935	6,664

* Indápur. † Last week's figures taken. ‡ Out of this 702 are last week's figures. ‖ Out of this 507 are last week's figures. § Out of this 208 are last week's figures. ¶ Out of this 266 are last week's figures

For the sake of brevity and facility in reference, the following arrangement has been adopted:—

1. A general description of the condition of the people.

2. A series of short notes upon the presence, or absence, of well-known Medical and Surgical affections.

3. Remarks upon the conditions most frequently found on *post-mortem* examination.

4. Certain observations having some interest in themselves apart from the question of famine.

The external appearance of people suffering from acute famine has been so often described that it need not be touched upon here, and in fact is hardly within the limits of the present observations, as very few, if indeed any, of the people admitted into the Sholápur Relief Camps during the year 1879-80 presented symptoms of acute starvation. * * * * * * * * The majority of the people admitted had been suffering for two or three years from great want, and had been compelled to live on an insufficient and unwholesome diet. Many persons were brought to the Relief Houses and died almost on admission, or shortly afterwards, from starvation, but even in their case the previous want of food sufficient for proper sustenance had been so long continued that though *post-mortem* examination might, and often did, show no signs of great organic change, the strength of the people had been so reduced that it became very difficult to draw the line between those who died of increasing weakness and exposure, and those who died of starvation merely because their growing emaciation and feebleness prevented their begging from place to place. Their condition had for long been so wretched that a few hours before death it did not much differ from what it had been for many months.

Though the inmates represented most of the recognised castes, except Brahmins, it must be remembered that they all had one thing in common, *viz.*, that they consisted of the village population of the surrounding districts, a population living in a fairly healthy climate, but reduced by long privation of every kind. Their houses were in *ruins*, their clothes were rags, and their food precarious, insufficient, and of inferior quality. With regard to food it may be mentioned in passing that the use of jungle plants, chiefly leguminous, does not indicate such a great amount of privation as might be supposed, as many jungle plants are used as adjuncts to ordinary diet by persons in fair circumstances, and a surer proof of scarcity is found in the use of the husks of the cultivated grains which were ground up along with the flour, probably to increase the bulk of what was eaten.

Two points, then, must be borne in mind—first, that the people were suffering from long standing want, following a severe famine; secondly, that before the famine came upon them they were accustomed to an out-door life, very different from that led by the population of large towns on whom clinical and pathological observations are usually made, and as a consequence differing in all probability in their diseases. Unless these points be remembered, tables of death-rates and other statistical data will be sources of error rather than securities for accuracy, for in spite of care and good food the already existing organic changes acted slowly indeed, but surely. A comparatively weak town population would have died in the time of actual famine, the hardier village population lingered on and died at a later period.

After death the difference in pathological conditions was probably not less pronounced by the marked absence of certain changes usually met with in persons confined in the lower parts of large towns.

The appearance of the people admitted in many respects resembled that of people suffering from acute famine. There was the same emaciation chiefly marked about the buttocks, the insides of the thighs and the scapular regions. The skin was hard and dry and covered with patches of dead and stinking epidermis mixed with serum.

The children had a prematurely old appearance, resembling that of children in Europe who have been given alcoholic drinks. The hair of the head was sparse, dry, and brittle. There was a tendency to baldness, but actual olopecia was but seldom observed. On other parts of the body a premature or abnormal production of hair was by no means unusual. In some cases the hard dry cuticle cracked and came off, leaving the cutis exposed and inflamed, especially on the extensor surfaces of the elbows and knees, on the summits of the shoulders and wherever tension was at all great.

Itch was extremely common, occurring in an aggravated form like that seen in the north of Europe—large portions of the body presenting eczematons surfaces covered with thick foul scabs, below which the parasite was concealed. In many instances in which these patches existed about the elbows, knees, and buttocks, the people were for a time quite disabled.

Eczema, usually eczema marginatum, was very common.

The most frequent diseases were the following:—Dropsy and stomatitis usually affecting the children, ulcers among adults, and dysenteries, diarrhœa found among adults and children alike.

Besides those suffering from emaciation or disease of comparatively recent occurrence, a number of people with paralysis and deformities had to be admitted, as owing to the general poverty; they could not support themselves by begging, as they had been in the habit of doing in times of less hardship.

MEDICAL AND SURGICAL AFFECTIONS.

Fever.—There was a considerable amount of fever among the inmates of the Relief Camps, but there was hardly sufficient ground for asserting that it was more frequent among the very emaciated than among those in better condition. Circumstances did not permit of observations exact enough to make a statement about any peculiarity in the sequence of attacks.—(V. Brain in section on Autopsies).

Cholera.—A few cases of a suspicious nature occurred in the Bársi Road (Kurdawadi) Relief Camp.—(V. Bowel in section on Autopsies).

Dysentery.—Acute dysentery was rare, but the percentage of the sub-acute and chronic forms was remarkably high, and was one of the main causes of death among all classes of the inmates.

Affections of the Liver.—No observations of importance were made during life.—(V. Liver in section on Autopsies).

Affections of Kidneys.—(V. Kidneys in section on Autopsies).

Affections of Lungs and Pleuræ.—Bronchitis and œdema of the lung (especially in dropsical cases) were extremely common. Two cases of pleurisy and one of phthisis pulmonalis were observed during life, but attention was not drawn to any cases of pneumonia.

Affections of the Heart and Blood-vessels.—Frequent and careful examinations have been made of the heart among the inmates of the Relief Camps. As the majority of the people were suffering from anæmia, it was natural to expect that functional murmurs, both cordiac and venous, would be met with, an expectation that was realised. Among all the weaker inmates, but more especially among the children, venous murmurs heard in the neck were the rule rather than the exception, and among adults functional heart murmurs were fairly common, and usually heard with most distinctness at the apex of the heart. A few instances of organic murmurs, usually mitral in orgin, were met with, but some aortic cases were noted, one in a Hindoo of about 20, who was probably syphilitic. In the other cases no exact history could be obtained. No cases of aneurism were observed.

Affections of the Brains and Nerves.—Numerous cases of persons suffering from various forms of paralysis have been observed in the camps; but their numbers hardly represent the proportion these cases bear to the general population, as deformed persons had no choice between coming to the Relief Houses and dying of starvation. The majority of the cases were probably instances of infantile paralysis, though some were evidently of syphilitic origin. Epileptic fits were not uncommon. Two cases of locomotor ataxy were observed. No cases of chorea were seen. One case of traumatic tetanus was met with. Though cases of total and partial blindness were frequent, chiefly from severe corneal ulceration of long standing, no case of loss of sight from atrophy of the optic nerve was found among the admissions.

Abscess.—Among the people admitted there was a fair number of large abscesses, yet they were by no means so numerous as might have been expected from the general condition of the people, and certainly did not exceed in frequency or importance those that are usually seen in an equal number of patients in an European Hospital.

Erysipelas.—Was remarkable by its absence, except that occurring in a sub-acute form about the face. This variety was rather frequent and by no means amenable to treatment. Local treatment or neglect seemed to have no effect, and, as a rule, no improvement took place till the general condition of the patient became more satisfactory, when the parts affected usually returned to

their normal condition. No important organic change seemed to take place as the affection seldom passed beyond a brawny inflammatory state.

Gangrene.—Apart from phagedænic sores, there was a fair amount of cases of gangrene, the usual form being senile gangrene of the toes and feet, though there were also a few instances of moist gangrene, chiefly occurring in the arms. Their ordinary causes were falls, or the native habit of using tight ligatures for vague pains in the limbs.

Ulcers.—Before a detailed description is given of individual ulcers, it may be well to draw attention to the fact that the whole question of ulceration is closely connected with what have been mentioned as the effects of famine. At the commencement of the time of scarcity, two or three years ago, ulcers were not so frequent as to attract attention; at the end of the famine period they became the feature, almost the specific feature, of the Relief Camps.

The ulcers usually formed on the lower extremities, but severe sloughing sores were also found on the arms, trunk, and head. Those on the head had probably arisen from neglected abscesses, small at first, but for want of care and cleanliness, and the irritation caused by maggots, they had become formidable sores, undermining the scalp and laying bare the bone. The ulcerated surfaces on the trunk were usually the results of injuries and abrasions; while those on the arms very often began as a mere vesicle containing a sanguineo-serous fluid. The vesicle eventually burst, leaving a small superficial sore which gradually encroached on the surrounding tissues.

On the lower extremities the ulcers were usually situated, as in Europe, over the front of the tibia, but not unfrequently very large, and intractable sores were found in three positions in which affections of the kind are not usually seen, *viz.*, over the tendo achillis, on the front of the knee, and the back of the thigh just below the buttock. The sores in these parts were probably caused by the tension and pressure, resulting from the way in which natives sit, and except on account of their enormous size, they had nothing peculiar about them; but many cases admitted with large sloughing sores or ulcers, fairly healthy on admission, subsequently became phagedænic. In the slighter forms sloughing of the ulcer began as greyish or yellow patches among the healthy red granulations, in severer cases rodent sloughing patches would occur at the edges of a sore, which would spread gradually at the expense of the skin and areolar tissue generally making its way in a crescentic shape. In the severest forms of all the surface of the sore would be covered with dark-coloured stinking sloughs in a remarkably short space of time. While these changes were taking place in the sore itself, the surrrounding tissues became tense, œdematous, and livid. Subsequently the phagedænic action extended into the areolar tissue undermining the skin to an almost incredible extent, passing deeply between the muscles and tendons, till at last the tendons and muscles sloughed away, the shafts of long bones were attacked and contiguous joints were laid open. In the more acute cases, 24 hours were sufficient to change a fairly healthy sore into a sloughing mass, certain to cause the patient's death. When the sores were in the neighbourhood of the tendo achillis it was by no means uncommon for the foot to slough away and the gangrenous action to extend more than half way up the leg. In the case of ulcers on the upper part of the thigh becoming phagedænic, the greater portion of the gluteal region sometimes became destroyed and the deeper structures laid bare. It is perhaps worthy of remark that the sloughing action usually began not at the lower but at the upper portion of the sore. Arterial hæmorrhage occurred in a few instances, but was not frequent. As the people with severe ulcers suffered more or less from hectic fever, usually a small amount of albumen was found in the urine.

Tumours.—Fatty tumours were probably about as common as in European patients; while malignant or semi-malignant growths were remarkable on account of their rarity. Two cases of epithelioma, both of the feet, and one case of cancer of the stomach having been met with.

Scrofula and Tubercle.—In spite of the privations and exposure which the people had suffered before their admission into the Relief Camps, tubercular affections were almost absent, only one case of phthisis having been met with

that was verified by *post-mortem* examination. The children contrasted most favourably with those of European towns in their freedom from scrofula. As has been already mentioned small abscesses about the head were rather common; but, as a rule, affections of the skin and mucous membrane (apart from stomatitis) were by no means frequent. Caries and necrosis were almost unknown except in cases in which the bone had been attacked by severe and gangrenous ulcers. Effusions into the synovial membranes were more frequently met with, but even they were not of such constant occurrence as to call for remark. Enlargement of the glands was rare. In many cases there was an apparent enlargement arising from the wasting of the surrounding tissues and the consequent prominence of the glands. This seeming enlargement was almost constantly seen in the inguinal and femoral glands of emaciated children, but *post-mortem* examination always tended to demonstrate that the appearance was due not to any change in the gland itself but to the shrunken skin being tightly drawn over the gland, whose outline was rendered distinct by the absence of surrounding fat.

Syphilis.—Frequent and careful examinations have been made with the object of arriving at a conclusion about the frequency of constitutional disease among the famine-stricken people. Difficulty of getting food has greatly increased the amount of prostitution, and there was nearly always in the camp a fair number of women suffering from gonorrhœa and local sores, but among adults the instances of acquired constitutional syphilis were few, and hereditary disease among children was but very seldom seen. Possibly more instances of syphilitic affections of the teeth and cornea could be seen in a week in a large European hospital than could be seen in a month in one of the Relief Camps. There can be no doubt whatever that the ulcers from which the people were suffering so severely were not syphilitic in their origin.

Stomatitis.—Among the very weak children gangrenous stomatitis was by no means uncommon, but another form of inflammation of the mouth was much more frequent. It usually occurred in weak children suffering from diarrhœa, but was by no means confined to them, as it frequently attacked strong and healthy ones. Adults were also affected by it, but much less frequently and usually with less severity. It had three seats of election—the edges of the gums, the mucous membrane corresponding with the line of meeting of the upper and lower teeth, and the mucous membrane covering the anterior border of the masseter muscle.

It consisted of an ulcerative process of the mucous and sub-mucous tissues which became covered with a creamy purulent coating. This coating was easily detached and exposed an uneven ulcerated surface. Very frequently the edges or point of the tongue were secondarily affected by their contiguity, though occasionally the tongue was ulcerated when other parts of the mouth were sound. This mouth affection was more or less frequent in all the camps for relief; but in Sholápur the cases were most frequent and most severe, probably owing to the fact that overcrowding was unavoidable, and that the condition of the people on admission was worse than in any other Relief Camp. It appeared to take the place in children that ulcers did in adults, and just as the ulcer frequently took on phagedænic action so the severer forms of mouth inflammation passed into cancrum oris, but, as a rule, it was by no means dangerous, and though many children died who were affected with it: they died from other causes and not from the stomatitis. This form of ulcerative stomatitis attacked weakly and healthy children alike, but another form of inflammatory affection was sometimes found in very emaciated children. The whole mouth became painful, parched and inflamed, and the temperature was considerably elevated in the mouth itself. The most typical condition was perhaps seen on the upper surface of the tongue which denuded of its epithelium and covered with prominent papillar presented an inflamed and sensitive surface often marked with deep and painful fissures. No cases of diphtheria were observed, and though several children were born in the camps no cases of thrush came under notice. The usual ulcerative form of stomatitis besides its local symptoms of painful ulceration, swelling of the surrounding parts and occasional enlargement of the neighbouring glands caused general depression accompanied with more or less elevation of temperature and acceleration of pulse. It varied considerably in

its course, sometimes disappearing in a week, sometimes lasting for more than a month; but, as a rule, though it might not quickly disappear, it seldom spread under vigorous treatment. When the Relief Camp (at Sholápur) was very full the affection probably depended on overcrowding, subsequently it was in all likelihood caused by emanations from the soil, as the ground had naturally soaked up a considerable amount of organic matter during the time the camp had been filled with sick people. It may be thought that a scorbutic tendency might account for the affection, but in many cases in which ulcers appeared on the insides of the cheeks there was no swelling or redness of the gums, and in some instances in which the gums were spongy, there was no ulceration. Also among adults there were several cases of ulcers on the legs with a scorbutic appearance, but the inmates affected with those ulcers were no more liable than the rest of the people to have sore mouths. In some cases in which the inflammation of the mouth was severe there was a small amount of albumen in the urine.

Post-mortem Appearances.—Three examinations were made of cases that had died with large ulcers on the head, which had eaten through the scalp, and caused necrosis of the bone. In two in which the ulcers were very large and much bone exposed, the membranes of the brain were infiltrated with purulent exudation and the longitudinal and transverse sinuses were more or less completely plugged with partially decomposed clot. There were no abscesses in the brain or elsewhere. The third case was that of a child of about 8 years. The child was progressing favourably, the ulcer was healing, and a necrosed portion of the outer table of the skull was on the point of coming away, when vomiting of blood came on suddenly and the child died. The head presented appearances somewhat like those found in the previous cases. A small portion of the wall of the longitudinal sinus had ulcerated through and the lumen of the sinus was blocked with partially decomposed clot. The membranes were hyperemic, but there was no general purulent infiltration. There was nothing in the abdomen calling for special remark. The stomach contained a small quantity of coffee ground coloured blood clot, but there were no signs of old or recent ulceration. On section the right lung was found to contain a recent bright-coloured blood clot about the size of a pigeon's egg. The walls of the cavity were ragged and the surrounding parts were inflamed close to the cavity, while beyond the zone of inflammation there was considerable congestion. The clot and the cavity were irregularly traversed by small blood-vessels and fine bronchial ramifications. Perhaps the appearances might be explained by a clot travelling from the cerebral sinus and by a pulmonary apoplexy arising from a severe circumscribed pneumonia.

Two *post-mortem* examinations were made of persons who had died from fever accompanied with convulsions. In one case that of a girl of about 6 years, the dura-mater was found to be extensively and very firmly adherent to the skull on either side of the longitudinal sinus. The corresponding parts of the diplæ were very congested. In the other case, that of a man, the pericranium and diplæ were unusually congested, the dura-mater was not particularly adherent to the skull, but the pia was extremely hyperæmic and firmly adherent to the falx-cerebri.

In connection with *post-mortem* appearances of the head may be mentioned the numerous cases of perforation of the tympanic membrane which were observed. In no case could the patient be got to assign any distinct cause. Cases of internal strabismus from hypermetropia were also of very frequent occurrence among children.

Thorax.—The cavity of the pericardium usually contained an abnormally large amount of clear serous fluid. In many cases there were small ecchymotic spots on both visceral and parietal layers. The usual localised spot of chronic pericarditis (milky patch—soldier's spot) was as frequent in both sexes as in Europe. One case was examined in which a strong band of adhesion passed between the two pericardial layers. One body was examined in which there was complete and firm adhesion (symphysis) of the pericardium. A single instance of hemorrhagic pericarditis was observed. The frequency of fatty degeneration of the muscular tissue of the heart was perfectly astonishing. It was by no means confined to persons of middle or advanced life; but some of the most marked

instances were found in persons under 20. Very many of the cases were not in the least of a doubtful nature requiring microscopic verification, but the structure and consistency of the heart had become so altered that the organ could be grasped in the hand and folded and squeezed into quite a small space. In some subjects, who were much emaciated, the heart's walls had become so thinned, that towards the apex of the right ventricle there was little or no tissue left between the endo and pericardium.

Degeneration of the heart muscle was by no means confined to persons who suffered from severe ulcers, but in them it was an almost constant feature. No doubt many of the ulcers took on a sloughing action from contagion or infection in case of persons in fair condition. But perhaps the conclusion is a legitimate one that in the majority of instances the ulceration was caused by a diseased state of the smaller blood-vessels corresponding with the pathological condition of the heart. It is an interesting question how far the state of the vascular system depended on the use of old and diseased grain or unusual articles of diet such as oil-cake. In one case, that of a man of about 45 years of age, fatty degeneration of the heart was combined with extensive calcareous deposits in the aorta and larger arteries. In many instances severe ulcers healed slowly till the entire surface was almost completely cicatrised, but suddenly when the patient seemed perfectly out of danger sloughing action would return and prove fatal. This could hardly be explained by a second infection, and certainly not by overcrowding, for not a few cases of this kind occurred when the Relief Camp was comparatively empty, and the patient was not near other sloughing cases.

The following example will explain what is meant:—

A healthy looking Mahár of about 18 years was admitted with a bad sore over the tendo achillis, which went on getting worse till the tender and the contiguous tissues sloughed. When healing action returned, an ulcer was left equal in breadth to the posterior surface of the leg and about 8 or 10 inches long. This ulcer gradually healed leaving a large and deforming scar till about a square inch of granulating surface was left just above the os calcis. The man had been more than six months in the Relief Camp, and though at one time much reduced, latterly had the appearance of a man in good condition. The ulcer after having been reduced to the dimensions above-mentioned again began to spread, and the patient died after the calf of the leg had almost entirely sloughed away. *Post-mortem* examination showed an excessively fatty and dilated heart. Nothing else calling for special remark was observed. Possibly the above is a case of gradually increasing vascular disease and the recurrence of phagadænic action may be accounted for by the finally dilated and enfeebled heart and diseased vessels being unable to regulate the blood supply. In connection with fatty disease of the heart, it may be mentioned that in many instances persons who did not appear to have anything acute the matter with them fell down suddenly and died when merely walking from one barrack to another. Unfortunately none of the cases which were seen to die in this way were examined after death, but the fact that in no *post-mortem* examination was an extravasation of blood found in the brain while fatty degeneration of the heart was frequent seem to indicate that syncope was the cause of death. The majority of the *post-mortem* inspections were made six to twelve hours after death. In many cases large blood clots were found firmly adherent to the chordæ tendeneæ, and extending for a considerable way into the aorta and pulmonary artery. It was thought that these clots might have partially formed before death owing to the gradual manner in which the patients died. On this account frequent stethiscopic examinations were made, but no murmurs were heard that might in any way point to the formation of præ-mortem clots.

Lungs.—Chronic pleurisy more or less extensive was fairly common. Even in extremely dropsical cases in which not only the subcutaneous areolar tissue but also the peritoneal and pericardial cavities contained considerable fluid, there was little or no serum in the pleural cavities. Slight chronic bronchitis was frequent, as well as emphysema and hypostatic congestion. In anasarcous cases œdema of the lungs was of almost constant occurrence. One example of empyema was found. Pneumonia was not common, though some cases of asthenic local inflammation of the lungs were met with—the various instances affording speci-

mens of the disease in its different stages. A special feature of the more emaciated people, especially of the children, was a more or less complete collapse of the pulmonary alveoli. In some cases the collapsed portion of lung could be reinflated, but in others collapse had been of such long standing that air could not be forced in. Usually the anterior edge of the lungs was affected, and perhaps the middle lobe of the right lung was the most common position of all. Only one case of phthisis pulmonalis was met with. Both lungs were almost equally affected. The disease was far advanced, both lungs containing a number of small cavities and the intervening parenchyma being to a great extent solidified.

Abdomen.—The liver presented nothing worthy of special notice except the frequency of fatty degeneration, sometimes alone, sometimes combined with fibrous proliferation (fibro-fatty). Only one well-marked case of cirrhosis was seen. The patient had severe ascites. In the same case the spleen was much contracted, the capsule being thrown into loose folds. No instance of abscess was met with, but in the case of a girl of about 10 years who died with sloughing ulcer of the leg, the liver, though of normal size or but slightly increased, was softened, and of an abnormally yellow colour. The patient had jaundice for some days before death. The appearances were those of simple inflammation and not of acute yellow atrophy.

In the autopsy of a woman who died with considerable ascites and general dropsy, the liver was studded with small tumours which microscopic examination would in all likelihood prove to be syphilomata. She had scars on various parts of her body which were probably the result of tertiary venereal disease. The examination of the kidneys has been negative in its results.

In the case of children who died from debility with or without diarrhœa the kidneys were normal, or if they departed from the standard at all it was merely in being rather paler than usual.

Among adults no cases of large fatty or contracted granual kidney were found. Frequent tests with iodine were performed, but distinct traces of amyloid disease were never found. Several examples of cystic disease were met with. The kidneys of adults suffering from great debility or severe ulcers presented an almost uniform appearance. The organs were of normal size, and extremely pale. The cortical substance was usually rather increased. The capsule was easily stripped off. The cut surface, though pale, was neither in appearance nor consistence like that of an amyloid kidney, and, as abovementioned, iodine gave no distinct indications. During life these persons, as a rule, had slight albuminuria, though examination for albumen occasionally failed to detect anything.

The spleen presented nothing abnormal beyond simple enlargement which occurred in fully half the cases examined. One case of extreme contraction has been already mentioned. In a very large percentage of cases the colon and rectum were affected with sub-acute or chronic dysenteric ulceration. The appearances presented nothing unusual, except perhaps the tendency to the formation of polypoid tumours probably caused by the long continued irritation and alteration in the intestinal wall. The inflammation very rarely indeed extended into the small intestine, when it did so extend its nature was entirely changed. Instead of being ulcerative it became catarrhal. In no case were the Peyerian patches affected except in one instance where the usual changes accompanying tuberculosis were found. This case has been already mentioned in connection with disease of the lungs. The appearances did not differ from those observed in *post-mortem* examinations made in Europe. In a few autopsies made at Kurdawadi during a suspected slight attack of cholera, the colon in certain cases was found to be healthy; while the small intestine was inflamed, swollen, and contained turbid serous fluid.

The stomach was very frequently affected with punctiform ulcers scattered over the portion of the organ corresponding with the greater curvature. Some of these ulcers were recent and covered with a small blood clot, others were chronic. In frequent instances the scars of former ulcers remained. Sometimes these small ulcers were found in the stomach when there was no marked lesion

of the intestine, but, as a rule, this condition of the stomach was found combined with ulceration of the colon, and the severer the ulceration of the colon the greater was the probability that ulcers would be found in the stomach. Attention may again be called to the fact that the intervening small intestine was usually healthy. This form of ulceration of the stomach occurred in both adults and children, but was much more common in the latter. Lumbrici were extremely common both among children and adults, and in the former were extremely apt to cause a tendency to involution of the intestine.

Apart from active disease the walls of the stomach and intestine were generally extremely atrophied. Peyers patches were usually so inconspicuous that they were as difficult to find in children as they usually are in old people. Treating the intestine with iodine always led to negative results.

In the case of a girl who died with extreme anæmia and general dropsy, extensive tabes mesenterica was found. No symptoms of phthisical tendency were found in the lungs. Besides this instance no other example of marked organic disease of the mesenteric glands was found. As a rule the glands were perhaps smaller, softer, flatter, and contained more fluid than usual. This was particularly the case with the glands in the above-mentioned subject, which were not actually invaded by tabes.

Those persons who died from severe ulcers were frequently examined in the expectation that secondary pyæmic abscesses would be found. None however were met with, even in cases in which foul discharging ulcers had almost eaten away the whole leg.

The question of dropsy is rather complicated. Doubtless in the majority of cases anæmia was the chief cause of the serous effusions. The chief causes of dropsy arising from organic disease met with in Europe were absent. Possibly, in addition to mere poverty of blood, vascular deterioration played an important part. Probably also the inactive state of the skin assisted, as there was always a greater tendency to anasarca during the cold weather.

There were a few cases of an acute form of dropsy which usually attacked the trunk and face. The skin became harsh, dry and tense, and the patient was not only in a state of great discomfort from the swelling, but at the same time suffered from a considerable amount of continued fever.

One severe case also suffered from hœmaturia. All the persons attacked were very anemic, but did not present any marked scorbutic tendency. Neither in this nor in the chronic forms of dropsy was albumen constant.

The following observations have some interest in themselves apart from the question of famine:—

Two examples of old Collis' fracture were dissected. In both cases it was evident that the lower end of the upper fragment had been driven downwards and forwards, and in both cases there was sublunation of the ulna inwards.

In many of the bodies on which autopsies were made guinea-worms were found in rather unusual positions. In one case a large worm was found in the mesentery, in another two coiled up calcified worms were discovered, one below the skin of the abdomen and a second in pleuritic false membrane attaching the base of the right lung to the diaphragm. In another case calcified worms were found below the peritoreum lining the abdomen and pelvis and in the mesosignoid folds of peritoneum. These worms were not coiled up but in the same position as when alive.

A case was admitted, a boy of 12 years, who ten days before had been wounded by a bullock on the left side below the true ribs. At the time of admission the wound was irregular and granulating. It had the appearance of having been a punctured wound combined with slight laceration. Portions of food with an odour like that of fæces came from the aperture. The boy died five days after admission, having had moderately acute tetanus for about forty-eight hours before death. On autopsy a guinea-worm was found in the fundus of the bladder below the peritoneum. The spinal cord was examined with the object of

endeavouring to discover some cause for the tetanus. When the laminæ of the dorsal vertebræ had been removed, a guinea-worm was found lying on the theca of the cord. It had entered by one of the intervertebral foramina and its other extremity lay just below the skin of the back after having traversed the erector spinæ muscles. The colon had received a punctured wound below the splenic flexure that admitted the point of the little finger. The upper part of the anterior border of the spleen had been wounded and a ragged cap-shaped depression lined with grey slough was left that would admit a moderately sized grape. The peritoneal cavity had been attacked with purulent and adhesive inflammation; though the spleen had been so severely injured the boy lived for about a fortnight.

One preparation has been obtained in which a guinea-worm is not improbably lying in the heart wall; but further dissection is necessary before a definite opinion could be given.

A number of lumbrici were found in the intestine of the subject affected with tubercular ulceration of the Peyerian glands.

A good number of the worms had burrowed through the undermined edges of the ulcers and were accordingly constricted by a narrow belt of ulcer tissue, thus contrasting with lumbrici in a perfectly healthy person which lie free.

Two cases of inflammation of the gall-bladder were met with. Both patients had been jaundiced before death. One was an old man with extensive vascular disease and fatty liver. The other was a girl who died from a sloughing ulcer, and whose liver showed signs of hepatitis. Both cases have been already mentioned in connection with other subjects. There was no ulceration or irritation of the bowel to account for the gall-bladder being affected.

In both instances the organ was increased in size and there was very great venous congestion in the neighbouring peritoneal folds. When the bladder was opened it was found to contain tenacious and rather thick bile-coloured mucus. The walls were much thickened and the living membrane was of a bright red colour.

78. In any notice of the famine there must be given, and I give *verbatim*, a couple of papers by the Reverend Dr. Fairbank, one describing, with the authority of a naturalist, those Deccan rats which did such incalculable mischief, and the other detailing the several wild seeds which, at all times, are largely consumed, and which, during the famine, were the sole support of many thousands:—

The present scarcity of food in the Sholápur Collectorate is principally due to the ravages of rats and mice. They appeared in countless numbers in the districts they have devastated, during the last cold season (January to March 1879), and ate up the grain before it was sufficiently ripened to be harvested. Many fields were entirely stripped, and of others, only a small portion of the crop was saved by hurriedly gathering the ears of grain, while it was still in the milk.

This plague was not confined to the Sholápur Districts, but was also severe in the Párner, Shrigonda and Karjat Tálúkas of the Ahmednagar Collectorate; and it extended far to the east and south. The full extent of their ravages has not yet been ascertained.

It is to be hoped that means may be found for exterminating these pests, or at least for reducing their numbers to a minimum, that will allow of cultivating the land with good hope of gathering harvest. As helpful to the devising of means for their destruction, it is proposed in this paper to describe the rats and mice that are known to inhabit this part of the Deccan, to sketch their habits, and to note anything known about them which may prove useful in abating the plague. Those species which have this year proved most destructive, will be described with more detail and particularity.

While collecting such species of rats and mice as live near Ahmednagar for W. T. Blanford, Esq., who is now the highest authority on the mammals of India, I studied the species I was able to collect, and took notes, which I have with me. These notes, with Dr. Jerdon's "Mammals of India," which I have used freely, are all the helps I have at hand for preparing this paper. I am sorry that I have not with me the papers published by Mr. Blanford on some of the spiny mice. I hope that the imperfections of the paper will be remedied by the comments of other observers.

These rats and mice are all included in the sub-family MURINÆ; but they belong to several groups, which will be characterized as we proceed.

The FIRST GROUP is that of the *Jerboa Rats.* They are between the Kangaroo, like jerboas, and the true rats. Their fore-legs are small, while their hind legs are powerful, and they are very agile and capable of surprising jumps. They have long and somewhat pointed heads; large eyes, and long tails, with tufts of hairs at their tips.

The Indian Jerboa Rat (Gerbillus indicus) had this year proved the most widely destructive of all these rodents, and has doubtless destroyed more grain than all the other kinds together. It is well called, by the Maráthas, the *Haran-undir, i.e.,* the antelope-rat; for its colours are like those of the female antelope; its ears are prominent; and its eyes are large and gazelle-like. It is fawn-coloured above and white below. It has long black whiskers, and a tuft of black or blackish hairs at the end of its tail. Its head and body are about 7 inches long and its tail is more than 8 inches long. Its fore-foot is half an inch, and its hind foot, 2 inches long. It weighs from 6 to 7 ounces. It burrows among the roots of bushes, or in the open ground, and forms long galleries. These have branches, that end in chambers, which are several inches wide, and are carpeted with dried grass. They do not usually hoard their food, which consists of grain and roots, especially of the sweet roots of *harayáli* grass (Cynodon dactylon) which it easily digs out of the ground.

The female brings forth a large litter of young ones, usually numbering 8 to 12; and Dr. Jerdon says, "occasionally it is said, as many as 16 or 20." This remarkable ficundity will help to account for their astonishing increase during this last year.

Those who wish to see these pretty antelope-rats, should note a place where there are many fresh rat holes, and there quietly approach the spot in the dusk of evening. They will soon see them leaping about, and will recognize them by their fine large eyes.

These jerboa rats have the credit, this year, of climbing the jowári stalks, and cutting off the ears. But it is probable that the *metáde,* spiny mice, are the more frequent offenders in this mode of destruction.

The SECOND GROUP contains the *Mole Rats.* They are characterized by their bluff head, large incisor teeth, and short, nearly naked tail. They are called *Kokú* or *Kok* by the Wadáris, but are known as *Kalé-undir* by the general name, *undir,* which is applied by the Maráthas to all rats and mice.

The Indian Mole Rat, (Nesokia indica) would be regarded as the common brown rat (mus decumanus) by a careless observer. But it has a shorter body and a shorter tail, though it is stouter and heavier. It grunts like the bandicote when pursued. Its colour is similar to that of the common brown rat, but there are fawn-coloured hairs mixed with the fur, and it is lighter below. Its ears are small and round. Its tail is naked and looks short. Its incisor teeth are very large, flat in front and orange yellow. Its entire length is about 13 inches, of which the tail takes 6 inches. The palm of its fore-foot is nearly half-an-inch ong, and that of its hind-foot, an-inch-and-a-half.

This rat lives alone, and forms extensive burrows. Dr. Jerdon says that he has seen its burrow, which "covered a space of nearly 15 or 20 yards in diameter." It stores large quantities of grain in its burrows, and the Wádaris dig them out and use both the rat and its store of grain for food. The female brings forth 8 or 10 at a birth, but drives her young away from her burrow as soon as they can take care of themselves. I have usually found this rat near fields of sugar-cane. Mr. Elliot says that "the *Kok* abounds in the richly cultivated black plains on cotton grounds;" that "the heavy rains often inundate their earths, destroy their stores, and force them to seek a new habitation." It is the opinion of the natives that great numbers of the rats that inhabit the black soil are yearly killed by the first heavy rain of the monsoon. As the black soil swells when the rain falls on it, so as to fill the broad deep cracks and the holes that are formed in the hot season, if a heavy rain falls on the dry seamed fields, the rats are caught in their holes and the fissures where they are hiding, and are smothered by the swelling soil. This idea is doubtless correct, and the great increase of these and the *metád* rats this year is partly accounted for by the fact, that in this rat-destroyed region, there was no sudden burst of the monsoon in 1878 with heavy rain, that would have destroyed them. Under the influence of the gentle showers, the black soil swelled gradually, and the rats escaped suffocation.

The THIRD GROUP is that of the typical rats that belong to the genus Mus as most restricted. These are too well known to require description. We have *The Bandicote Rat,* (Mus bandicota); *The Black Rat,* (Mus rathus); and *The Brown Rat,* (Mus decumanus). They usually infest houses and eat the food stored in those houses. But sometimes they attack adjoining fields of grain, and destroy large quantities of the ears.

Omitting a group of very long-tailed rats, of which I have found no specimens in the Deccan, our FOURTH GROUP contains some arboreal, long-tailed mice. These are placed by Gray in a genus that he calls Vandelenria. They "have the upper incisors triangular and grooved in front; ears hairy; hind-feet very long, slender; claws small; tail long with scattered hairs more crowded at the tip; the fur soft, in the long bristles interspersed."

The Long-tailed Tree-mouse (Mus oleraceus), is very pretty. It is of a bright rufaus colour above, with its feet and lower parts pure white. Dr. Jerdon says "I have found it most abundant in the south of India, where it frequents trees, and very commonly palm-

trees, &c." At Ahmednagar it has annoyed me by biting off the flowering branches of the Antigonon leptopus, a lovely creeper, that for several months of the year is covered with a mass of rose-coloured blossoms. This mouse has not probably helped much in the destruction of the grain crops.

Our FIFTH GROUP comprises the *House Mice*. *The common Indian mouse* (Mus urbanus), has habits like those of the English house mouse. It is dusky, reddish-brown above, paler below. Blyth says that "this differs conspicuously from the common English mouse in its smaller ears and much longer tail. It has also larger eyes and smaller feet. The fur too is of a very different texture."

Our SIXTH GROUP is composed of the *Field Mice*, of which the fur contains *no* flattened or *spiny hairs*. The tail is shorter than the head and body.

The Earthy Field Mouse (Mus terriculor). Its length from its nose to the tip of its tail is only four-and-a-half inches, of which the tail is about two inches. Its colour above is fawn-coloured and below white. The fawn and white are abruptly separated. I have rarely obtained this mouse, and do not think it is common in the Deccan.

The SEVENTH GROUP comprises the *Spiny Field Mice*, and we have five species of them. The fur of these mice is mixed with spiny and flattened hairs. These are sharper and rougher on some of the species than on the others; but under the microscope the spiny hairs of even the L. Lepida and G. Mettada, are at once distinguished.

The Brown Spiny Mouse (Leggada platythrix) is well known to the Wadáris of the Deccan. The specimens they brought me they called *Legyádé* or *Legad gondú*. The entire length of a full grown mouse of this species is 6 inches, of which the tail is 2·5 inches; its ear is only half an inch long. It is of a light sandy brown colour above, and white below. The flattened spiny hairs on the back are transparent and noticeable. They are smaller on the belly. This mouse burrows on hill sides or in banks. Its burrow is found by a collection of small pebbles that it is in the habit of making around the mouth of its burrow. It uses these pebbles for closing the mouth of its burrow. The food of this mouse is mostly or entirely vegetable. So it may have helped in destroying the crops in some places; but its numbers increase less rapidly than of some other kinds, and it is probably not one of the chief pests.

The Fulvous Spiny Mouse, (Leggada—N. S.) was brought me at Ahmednagar by a Wadári. He called it *Shintadgandu*. The Wadáris said they knew it well, but I was unable to procure another specimen. The one obtained was a full-grown male, 6 inches long, of which the tail was just 3 inches. Its colour was dusky, the tips of its hairs being fulvous on the sides and below. Both the dusky and fulvous grew lighter below. Its whiskers were entirely black. Its upper incisors were orange and its lower incisors were gloss, slimy white. Its ear was 0·5 × 0·4 inch. Its palm was 0·3 inch, and its sole 0·62 inch in length. I sent this mouse to W. T. Blanford, Esq., and hope that, among his many pressing duties, he may find time to describe it.

The Small Spiny Mouse (Leggada lepida), is more common. A large one is only about 5·5 inches in length, of which the tail is nearly one-half. The Nagar Wadáris call it *shintad burkhai* or *shintad phurkha*. Jerdon writes the Wadári name, *chita burkani*. It is of a pale, sandy brown colour above and white below, the two colours being distinctly defined where they meet. The spiny hairs of this mouse are fine and transparent, and not rough to the touch. Its habits are like those of L. plotythrix, and it is not likely to have proved very abundant or very destructive anywhere.

The Bush Rat, or as it is called in Ceylon, the Coffee Rat (Golunda Elliotti), does not seem to be abundant in the Deccan, but specimens were obtained at Nagar. The Wadáris called it *Gûlandi*. This rat, most people would call it mouse, has been carefully described by Mr. Blanford in the Journal of Asiatic Society of Bengal, and I am sorry I have not the papers at hand. The mouse is 10·5 inches long, of which the tail is 4·3 inches. Its ear is 0·6 inches long. Its colour is dusky, fulvous, fading into a light tawny colour below. Its muzzle is blunt and its face is covered with rough hair. Its whiskers are long and very fine. It does not burrow, but makes its ball-like nest among the branches of some thorny bush. Its principal food seems to be the roots of the (Cynodon dactylon) harayáli grass.

Dr. Jerdon says that "this is the Coffee Rat of Ceylon, so destructive to coffee trees: whole plantations being sometimes deprived of buds and blossoms by these rats." And he quotes Dr. Kelaort as saying—"They appear to be migratory, and are not always seen in coffee estates; when they do visit the cultivated parts, their numbers are so great, that in one day, more than a thousand have been known to be killed on one estate."

The Large-eared Field Mouse (Golunda mettada), is one of our chief pests. It is a soft-furred mouse, and yet has a few flattened and spiny hairs among its fine close fur. As have the other members of this group, its colour is reddish-brown with a mixture of fawn becoming lighter below. Its whole length is about 10 inches, of which the tail is 4·3 inches. It is distinguished by its large ear, which is 0·8 inch in diameter. The female produces 6 or 8 young at a birth. It is called *mettad* or mettangandu by the Wadáris.

This mouse has long been known as a plague. I cannot better show this and its habits than by quoting what was written many years ago by Mr. Elliot. He says, "The *mettade* lives entirely in cultivated fields in pairs or small societies of five or six, making a very slight and rude hole in the root of a bush, or merely harbouring among the heaps of stones thrown together in the fields in the deserted burrow of the *kok*, or contenting itself with the deep cracks and fissures, formed in the black soil during the hot months. Great numbers perish annually when these collapse, and fill up at the commencement of the rains. The monsoon of 1826 having been deficient in the usual fall of rain at the commencement of the season, the mettades bred in such numbers as to become a perfect plague. They ate up the seed as soon as sown, and continued their ravages when the grain approach to maturity, climbing up the stalks of jowári, and cutting off the ear to devour the grain with greater facility. I saw many whole fields completely devastated, so much so as to prevent the farmers from paying their rents. The ryots employed the Wadárs to destroy them, who killed them by thousands, receiving a measure of grain for so many dozens, without perceptibly diminishing their numbers."

This rat, with the Jerboa rat and the Mole rat, *i.e.*, the *mettade*, the *haran-undir*, and the *kok* are the "horrid rats" that have this year destroyed the crops over thousands of square miles of the Deccan. The people were rejoicing in the promise of fine jowári and wheat crops, but the ravages of these rats reduced them to sudden consternation and despair. In some fields they did the work of destruction leisurely, cutting down with their sharp incisors some cart-loads of the stalks each night, and either eating the grain or dragging the beads into their burrows. Into other fields, an army of the rats suddenly entered in the night, and in a few hours ate up the grain like a flight of locusts. After our two years of famine from drought, this new calamity was indescribably terrible. The bountiful harvest was snatched from the eager emaciated hands of the half-starved people who had survived the drought, just as they began to eat the roasting ears of the first fruits, and were preparing to gather and bring home the golden sheaves with rejoicing. It is no wonder that their eyes have lost their lustre, and that they creep round in this dispirited way. It is no wonder that they say "what can we do? and what is the use?" and delay to plough their fields. More than half the houses of these villages are empty, and falling to ruin. Half the population has gone. Many years must elapse before the old prosperity can fully return. It seems strange that the last of the plagues that have wrought this desolation, should be an invasion of rats and mice.

REMEDIES.

It is easier to suggest than to apply remedies, but it is plain that all practicable remedies should be used to abate the pest. A race less apathetic than the Hindus are, and people less scrupulous than most Hindus are in things that involve the destruction of life, would surely have inaugurated measures of various kinds for destroying the rats.

1. Still, though the farmers have done nothing of that kind, Government might offer rewards for dead rats, by the dozen or the score, that would lead the Wadáris and other low-caste Hindus to kill them in large numbers.

2. It is likely that there are substances which the rats would eat, with which poison might be mixed, and so great numbers might be poisoned. Only the process must be executed with great caution, for every eatable thing that is exposed on the ground, is likely to be picked up and eaten by somebody.

3. Many rats might also be trapped. A very efficient rat-trap may be made by attaching a *thin* board 18 or 20 inches long, by a hinge fastened *near* its middle to the edge of ranjan (or barrel) that should be half filled with water, so that when the rat goes for the bait on the unsupported end of the board, his weight will tip it, and he will inevitably fall into the water in the ranjan, and then the board, because the outer half is a little heavier, will return to its first position, and be ready for the next comer.

WILD SEEDS, &c.

A list of the wild grains, seeds and other vegetable products, and some articles not commonly eaten, which have been used in the Deccan for food during the famines of 1877-1879.

SEEDS OF WEEDS.

1. *Badabadè* बडबडे, is the native name in Sholápur for Indigofera glandulosa of the Leguminosæ. It grows abundantly in many fields, particularly in wet places. It prefers good soil. It produces in the axils of its leaves, bunches of small pods that are twice as long as broad and four-angled. Each pod contains two small seeds that are like miniature beans or peas. This plant at Ahmednagar is called *Diwālī*. Its seed is a good article of food if used in connection with grain. But, when eaten as the exclusive food, it proves unhealthy, causing the feet and hands to swell. Here, in 1879, it has been one of the articles regularly exposed for sale in the village shops and has sold at 8 to 10 seers for a rupee. The supply of this seed was mostly exhausted before this investigation began.

2. *Pāndharī phalè* पांढरीं फळें, is the Sholápur name for Indigofera linifolia, also of the bean tribe. This is called वडवडे, at Nagar. It grows abundantly on the light soils, often taking almost exclusive possession of acres of uncultivated land. It grows still more luxuriantly in cultivated fields. It may be easily recognized by its hoary appearance, having often a purplish or lilac tinge. It produces a bunch of globose pods in the axil of each leaf. A pode contains but one seed, so that many will hardly believe it is a legumen. As food, its character is like that of No. 1.

3. *Bodagā* बोदगा, or *Botsakā* बोचका, as it is called at Sholápur, has similar habits and is also a legumen. I have not examined its flower, as its seeds were not eaten last year at Ahmednagar. It may be Indigofera cordifolia. It is called *Godaḍí* गोदडी, at Nagar, and the name seems appropriate, because it may be said to resemble a bit of a quilt, as it thickly covers with its hoary leaves the spot of ground it occupies. Its seeds are smaller than those of Nos. 1 and 2, but there are two of them in a pod. It has been used so far as obtainable this year in the Sholápur villages. And after 1 and 2 became scarce it was the principal food of the poor in the Mádha Táluk and in the villages around Tembhurni, &c. The gatherer cleans away the plants, and grass, &c., and sweeps together the pods and seeds that had fallen on the ground. Then he or she sifts, winnows, pounds, and winnows again, till a little handful of the seed has been secured. It is not half the size of mustard seed. So he works on in the more promising places and may be able to gather in the day a quarter of a seer, which will weigh about a pound. But a hard day's work in May, often resulted in gathering only half a pound. And when the rain began to fall after the 20th of May, the seeds became mixed with the wet soil and could no longer be collected. This seed is esteemed to be less wholesome than Nos. 1 and 2.

4. *Mûkanī* मुकनी, or *Maṭakī* मटकी, is a wild bean, Phaseolus trinervians, that grows on hill sides and pasture lands. It has a seed larger than those before mentioned, but it is nowhere abundant. The people have used it as far as attainable.

5. The seeds of some kinds of Amaranthus कोंबडा, *Kombaḍā*, Celosia argentea, *Māṭh* माठ, Amaranthus spinosus, Tándûlsá तांदुलसा, Euxolus oleraceus, &c., have been used. These seeds are not unlike those of *Rāzagirā* राजगिरा, Amaranthus paniculatus, which is cultivated for its seeds. They are usually parched for use.

6. *Iṭsakā* इचका, is Tradescantia cristata, or T. axillaris, of the Commelynaceæ. This spider-wort spreads about over the ground. Its pale blue or lilac flowers with their pretty hairy anthers appear in the morning. In the axil of each leaf a bunch of long black seeds is ripened. They are hard and gritty when bitten, but when ground and cooked, they have proved the most wholesome of the wild seeds that have been used during the famine. They were sought so eagerly in 1878 by the Sholápur villagers that very little seems to have escaped them to become seed for the crop of 1879, and it seems to have been nearly exterminated.

7. *Kena* केणा, is Commelyna communis, another spider-wort. The flower buds of this plant are enclosed in terminal cucullate spathes. The delicate blue flowers protrude from these spathes each morning. In the spathe a bunch of seeds is ripened. They are wholesome like those of No. 6.

8. *Tûrbī* तुरबी, is a tall Malvaceous plant, perhaps Hibiscus vesicarius. Its capsules and seeds resemble those of Hibiscus cannabinus, Ambāḍī अंबाडी, which are usually fed to cattle, but are this year used for human food. And the seeds of tûrbī are used in the Sholápur villages.

9. *Karaḍaī* करडई, is Carthamus tinctorius, or safflower. Its dried flowers are called कुसुंबा Kusumbā. Its seeds are ground and pressed for the oil which is commonly used in the preparation of native food. We found people dining on the roasted seeds, and they were from the better classes of the Sholápur villages.

Seeds of Trees.

10. *Chintsûkā* चिंचुका, or tamarind seeds (Tamarindus indicus) are cracked and eaten, either roasted or in their raw state.

11. *Dāmukè* दामुके, the seed of the Bābhal, Acacia Arabica, are used the same way. The Bābhal seeds even that have been voided by goats that have eaten the pods, are gathered and roasted and eaten. These seeds cooked in any way, are found deleterious to health.

12. *Chandan chārolī* चंदन चारोळी, The seeds of the sandal-wood tree, Santalum album, have been eaten.

13. *Bor* बोर seeds, Zizyphus jujuba, are cracked and the meat eaten.

Leaves used for Greens.

14. *Tarawaḍ* तरवड leaves, Cassia auriculata. All parts of this bush are highly astringent.

15. *Rānmethi* रानमेथी and *Pandhad* पंधड are different sorts of Cassia that are allied to Cassia senna, and their leaves are often mixed with those of senna, which are highly purgative. The tender leaves are used for food, and perhaps the purgative principle has not been much developed in them.

16. *Sarāṭè* सराटे, is Tribulus ternatus, a common weed that spreads over the ground.

17. *Gheṭolè* घेटोळें, is Bauhmia diffusa, also common and diffused on the ground.

18. *Ghoḷ,* घोळ, Purslain portulacca oleracea is a good pot-herb.

19. *Māṭh* माठ, Amaranthus spinosus, *Tāndulsā,* Exolus oleraceus, and other amaranthus are all good pot-herbs. They are boiled, squeezed and drained, and mixed with a little meal, are made into cakes and baked for bread.

20. Mākaḍ shingī माकड शिंगी, Monkey's horn, Caralluma fimbriata of the Asclepeadæ is a leafless plant with swollen stems which are used as a vegetable.

Fruits.

21. *Bonḍe* बोंडें, the figs of Cactus, Opuntia dillenii are eaten where they can be obtained. They are very wholesome, and are nourishing from the sugar of the juice and the oil which is contained in the seeds.

22. The fruit of the Pimpal and similar trees, which are really small figs, are eagerly eaten. They are the fruits of the Umber उंबर, Covillia glomerata; the Pimple पिंपळ, Urostigma religiosa; the Nāndrûk नांदरूक, Urostigma retusum; the Pipri पिंपरी, Urostigma pseudotjela; and the Waḍ वड, or Banyan, Urostigema bengalense.

23. *Bèl* बेल, Ægle marmalos. This fruit is a valuable medicine in dysentery.

24. *Rān kāralè* रान कारळे, is a wild cucumber, the fruit of Luffa amara.

Sundry.

25. The Cobs of Maize, Zea mays, of Jawári, Holcus sorghum, and of Bájari, Holcus spicata, are ground and mixed with meal to make bread. They are a little sweet, and at any rate will help to fill the empty stomach.

26. The chaff of wheat, especially the kind called जोड गहूं, *Zodgahû,* or *Khapalè gahû* खपले गहूं, is used the same way.

27. *Hamám doḍè* हमामदोडे, the tuberous root of an Asclepias or a Ceropegia.

28. The onion like bulb of Crinum roxburghii that grows along the Deccan rivers.

There are doubtless other wild vegetable products that are used for food, but among the above will be found those most commonly used.

Sholápur, 30th May 1879.

79. Five packets of these seeds were forwarded to the Chemical Analyser to Government, and the following were sown, grown, and identified by Dr. Succaram Arjoon, the Acting Professor of Botany at Grant Medical College :—

1.	Karli	or Abuliton tormentosum.
2.	Ichka	or Cyanotis axillaris.
3.	Barbara	or Indigofera glandulosa.
4.	Bochka	or Smithia sensitiva.
5.	Pandra Phali	or Indigofera linifolia.

The following is Dr. Lyon's analysis of No. 4 :—

Smithia sensitiva—the dried grain.

Fat	6·75
Albuminates*	29·00
Carbo-hydrates	37·29
Cellulose	16·81
Ash	10·15
* Containing Nitrogen 4·64	100·00

The above results would assign a nutritive value to the moist grain equal to about 86 per cent. of that of an average pulse.

The analyses of the others are given in his Annual Report for 1878-79, page 33. The Abuliton is less valuable than the others, and the Indigoferas,

differing slightly from each other, are but little inferior to most Indian pulse—as may be seen from the subjoined—

	Indigofera glandulosa.	Tur dal—Cajanus Indicus.
Water ...	... 8·91	10·63
Ash	... 2·63	3·11
Nitrogenous substances	... 24·25	22·18

But in estimating these values it must not be forgotten, that the poor famished wretches who sought for these seeds could ill-afford the physical exertion entailed in the seeking, collecting, cleaning, and grinding.

80. Without wishing to re-open the vexed question of diet I am bound to say, that, in my opinion based upon practice, the 1 lb. ration is not sufficient. It will prolong existence, if that be an object, but it can never restore a starving people to that condition which would enable them to earn a living, and nothing short of that meets the case.

81. When the Sholápur Relief Camp was first opened there were 3 different diet scales—one for workers, another for non-workers, and a third for the sick—but they were not well proportioned as to their nitrogen and carbon. After repeated trials, the following were adopted:—

No. 1 *Scale.*—For those mustered daily for work in and about the Relief Camp—the actual work was the conservancy of the area—

	Old scale.	New scale.	
Jowari flour for bread ...	42 tolas = $16\frac{4}{5}$ ozs.	42 tolas = $16\frac{4}{5}$ ozs.	
„ „ for porridge 1 pint ...	9 „ = $3\frac{3}{5}$ „	$7\frac{1}{2}$ „ = 3 „	
Dal—to make soup 1 „ ...	$4\frac{1}{2}$ „ = $1\frac{4}{5}$ „	$7\frac{1}{2}$ „ = 3 „	Fuel 1 lb.
Condiments—(salt and curry-stuff) ...	$1\frac{1}{4}$ „ = $\frac{1}{2}$ „	$2\frac{1}{2}$ „ = 1 „	
	$56\frac{3}{4}$ „ = $22\frac{7}{10}$ „	$59\frac{1}{2}$ „ = $23\frac{4}{5}$ „	
	Nit. grs. 140	Carb. grs. 3700	Nit. grs. 172	Carb. grs. 3800

Proposed scale exceeds the old by $2\frac{3}{4}$ tolas or $1\frac{1}{10}$ ounce.
Three breads—each 14 tolas or $5\frac{3}{5}$ ounces of raw flour.
The dal soup and the porridge to be flavoured with condiments,
Two breads and 1 pint dal soup at 11 A. M.
One bread and 1 pint porridge at 6 P. M.

No. 2 *Scale.*—For non-workers—the old and infirm, and for grown-up children—those from 8 to 12 or 13 years old—

	Old scale.	New scale.	
Jowari flour for bread... ...	28 tolas = $11\frac{1}{5}$ ozs.	28 tolas = $11\frac{1}{5}$ ozs.	
„ „ for porridge 1 pint ...	9 „ = $3\frac{3}{5}$ „	$7\frac{1}{2}$ „ = 3 „	
Dal—to make soup 1 „ ...	$4\frac{1}{2}$ „ = $1\frac{4}{5}$ „	$7\frac{1}{2}$ „ = 3 „	Fuel 1 lb.
Condiments—as salt and curry-stuff.	$1\frac{1}{4}$ „ = $\frac{1}{2}$ „	$2\frac{1}{2}$ „ = 1 „	
	$42\frac{3}{4}$ „ = $17\frac{1}{10}$ „	$45\frac{1}{2}$ „ = $18\frac{4}{5}$ „	
	Nit. grs. 119	Carb. grs. 2600	Nit. grs. 138	Carb. grs. 2866

The proposed scale exceeds the old by $2\frac{3}{4}$ tolas or 1 $\frac{1}{10}$ ounce.
One and half bread and 1 pint dhall soup at 11 A.M.
Half bread and 1 pint porridge at 6 P.M.

No. 3 *Scale.*—For the younger children—7 years and under—

Jowari flour for bread	... 28 tolas	= $11\frac{1}{5}$ ozs.	
„ „ for $\frac{1}{2}$ pint of porridge	... $3\frac{3}{4}$ „	= $1\frac{1}{2}$ „	
Dal for $\frac{1}{2}$ pint of soup	... $3\frac{3}{4}$ „	= $1\frac{1}{2}$ „	Fuel 1 lb.
Condiments—as salt and curry-stuff	... $1\frac{1}{4}$ „	= $\frac{1}{2}$ „	
	$36\frac{3}{4}$ „	$14\frac{7}{10}$ „	
	Nit. grs. 102	Carb. grs. 2350	

One bread and ½ pint of dhall soup at 11 A. M.
Do. do. of porridge at 6 P.M.

No. 4 *Scale*—Special—for suckling mothers, and others—at discretion for the sick—

	New scale.		Old scale.	
			Ts.	Ozs.
Jowari, or wheaten, flour for bread	28 tolas	= 11⅓ ozs.	Wheaten flour	20 = 8
Dal for 1 pint soup	7½ „	= 3 „	Dal	10 = 4
Mutton for 1 pint broth	20 „	= 8 „	Rice	30 = 12
Condiments—salt and curry-stuff	2½ „	= 1 „	Mutton	10 = 4
			Ghee	2½ = 1
	61 „	24⅜ „	Milk	20 = 8
			Condiments	2½ = 1
				95 = 38
	Nit. grs.	Carb. grs.	Nit. grs.	Carb. grs.
	264	4,850.	213	2,870

The mutton broth and dal soup to be flavoured with condiments.
One bread and 1 pint mutton broth with rice at 11 A. M.
„ „ and 1 „ dal soup at 6 P. M.
Children above 10 get ¾
„ under 10 „ ½
„ in arms „ ¼

Minor changes were made in these scales, and in the hours of messing. Eventually all had meat once a week, and vegetables three times a week, and a small quantity of oil.

82. The prices of the various food grains in the Deccan generally will be found in the subjoined table, compiled in the Public Works Secretariat:—

Comparative Statement of average prices in pounds avoirdupois for the rupee of ordinary food grains consumed by the people in the Deccan and Southern Marátha Country, compiled from Collector's reports received between November 1876 *and December* 1879.

Districts.	November.				December.				January.		February.		March.		April.	
	1876.	1877.	1878.	1879.	1876.	1877.	1878.	1879.	1877.	1879.	1877.	1879.	1877.	1879.	1877.	1879.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Khándesh	24	30	35	26½	31	31½	33½	30½	32	29½	32	31½	34	31½	32	31½
Násik	31	27	26½	25 1/16	31	25	28	25½	32	29	32	28½	32	29	31	29
Ahmednagar	23	27	25½	24½	27	26½	24½	24½	30	26½	26	28	25	28½	25	27½
Poona	22	23	22	23½	20	24½	22½	24½	23	23	24	24½	24	25½	23	23½
Sholápur	16	29	19	22 1/16	21	26	19½	23½	20	19	20	21	21	21½	20	20½
Sátára	19	26	21½	19½	18	27½	20½	22½	20	21	20	20½	20	20½	18	20
Kaládgi	16	19	26½	28 1/16	14	20	32½	37 1/16	17	29½	18	25	17	25½	16	24½
Belgaum	15	26	25½	26⅜	18	32½	29	35½	20	29	20	26½	19	26½	17	25½
Dhárwár	13	22	24½	34½	15	33½	39	43⅜	18	37½	18	32½	17	32½	15	33

Districts.	May.		June.		July.			August.			September.			October.			Remarks.
	1877.	1879.	1877.	1879.	1877.	1878.	1879.	1877.	1878.	1879.	1877.	1878.	1879.	1877	1878	1879	
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	
Khándesh	29½	25½	28	24½	25	27½	26½	19	33½	24½	18	29½	22	22	30	22½	Ordinary prices range from 39 lbs. to 70 lbs. for the rupee.
Násik	27	26 7/16	28	25½	29	21	24½	18	Not reported.	23½	17	20	23½	20	21	22	
Ahmedabad	24	23 11/16	23	21	19	21½	21½	14	24½	23½	14	23½	21½	20	23	22	
Poona	20	21½	19	20	16	19½	20½	13	21½	21	14	21½	20½	19	23	21	
Sholápur	19	18½	17	18½	14	20½	18½	11	21	20½	12	18½	20½	22	18½	20½	
Sátára	17	16 1/16	15	16½	14	18½	16½	13	19½	17½	13	20½	17½	22	21	18	
Kaládgi	14	20 11/16	12	18½	10	16½	18½	10	20	21½	9	27½	21½	12	27½	20½	
Belgaum	15	21½	14	19½	11	17⅓	20	9	19½	21½	12	23½	23	16	25½	24	
Dhárwár	14	27 8/16	12	24½	10	15½	26	9	17⅔	28½	11	21½	31½	13	22½	33½	

83. Having had very painful experiences of the famine conditions from May onwards, when things were at their worst, I started at the close of the year, and made the circuit of the Southern Deccan. Going down the western side through Sátára, Kolhápur and Beglaum, and from Belgaum visiting Dhárwár, I came up the eastern side through Kaládgi, Bijápur, and Sholápur and in this long round was able to contrast the existing with the previous reported conditions. On the western route there was almost one unbroken line of rich cultivation in all its stages; and it was gratifying to see, that in the fields under preparation, the village refuse was about to be utilised. Within some 20 miles of Kaládgi, about Pachgaum, there was a marked change, and the flat-roofed houses denoted a lighter rainfall. There were longer stretches of waste, and more of them, but it was not until I crossed the Krishna that I again came upon those arid Eastern Deccan Districts. At Sholápur the conditions had much improved, and though the Relief Camp was still open, its inmates were comparatively well off: they were none of them fit for work, but there was none of that awful and appalling misery which once seen can never be forgotten.

84. I have touched briefly upon many points which engage the attention of the Sanitary Department, and did time permit, I could say much more about them, and about others equally important. I trust that Government may be pleased to think that the Deputy Sanitary Commissioners and their subordinates have carried out their duties satisfactorily, and will recognise the difficulties under which they work. Indeed, to have a thoroughly effective organisation, there should be one Health Officer for each Collectorate, identified with its area, and its people, as are the Revenue Officers. Within that area he should be conversant with its physical geography, its communications, and resources, its peculiarities of climate, and rainfall, its water-supply, its special and incidental diseases, its staple and other foods, its system of agriculture, its products and the general condition of its people. He would be the real Civil Surgeon, as much a part and parcel of the District as the Collector, working with and for him, and, if needs, be travelling with him.

85. In the Resolution on last year's report it was said, that there was an absence of "suggestion and comment," and Government desire that "when a mass of facts and figures is submitted to them the deductions to be made therefrom should be stated so far as the judgment of the reporting officer goes." Now with all deference I venture to point out, that the "figures," as I receive them, are unsupported by one single fact as to antecedent conditions. They are nothing more than the bald record, that there were so many births and deaths in such and such areas. The deaths too are reported by Patels and Police, and their guesses at the specified causes to which they shall be assigned are determined by the garrulous and garbled statements of relatives and friends, themselves grossly ignorant. The "figures" are those of a registry office in which nothing whatever is known of the sickness which preceded the events registered; and from such figures no etiological deductions are possible, except those of a general nature which have been made over and over again, and which are perfectly well known to Government. It would be mere iteration to enumerate as disease causes the general want of drainage, the crying want of conservancy in all its phases, a foul subsoil, a tainted atmosphere, a polluted water-supply, unwholesome diet, inadequate clothing, faulty house construction, with overcrowding, and that noxious habit of sleeping upon the ground, countless imprudences of omission and commission, exposure and want, and the many evils that meet one at every turn. For years past "suggestion and comment" have been made on each and all of these points, and to one or other of them may be ascribed all our registered deaths, except those from violence and specific contagion. With mere registration figures it is impossible to do more than sift and sort them into the different tables and statements in which the results are exhibited, and add such explanatory letter press as will direct attention to the more salient features, and with great respect I submit this is done. The letter press of the Reports for the past 9 years gives more or less information upon the following birth and death details:—

Births. { Total of persons, males, females.
Ratio per 1,000 of population.
„ male to males living.
„ female to females „

Births.
- Male to female in every 100.
- Female to every 100 male.
- By months.
- Maxima and minima.

Deaths.
- Total of persons, males, females.
- Ratio per 1,000 living.
- „ male to males living.
- „ female to females „
- „ to attacks—for cholera.
- „ population of affected area to that of District—for cholera.
- Maxima and minima.
- Specified causes.
- Age periods.
- Sex.
- Caste and Class.
- By divisions, districts, rural, town, and cantonment circles, and for villages for cholera.
- By years, quarters, seasons, months, and by days for cholera.

These and other points are noticed in the letter press, and they are further explained by table, or statement, or diagram. In addition there are special pages for special diseases, and the rise and spread of cholera is followed with a minuteness of detail that is wearisome to read, and far more wearisome to write. At the same time if Government will be pleased to indicate what further details are wanted they shall be supplied as far as lies in my power. I venture to think that very little more can be done with the figures than is done, and a reference to the reports of the Registrar General of England will show, that, beyond the explanation of the several tables, they contain neither "suggestion, nor comment, nor deduction."

JOHN LUMSDAINE,
Sanitary Commissioner.

Bombay, July 9th, 1880.

APPENDICES.

ANNUAL FORM NO. I.—BIRTHS *registered in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during the year* 1879.

1	2	3	4			5			6	7	8
No.	DISTRICTS.	Population according to Census of 1872.	Number of Births registered.			Ratio of Births per 1,000 of Population.			Number of Males born to every 100 Females born.	Excess of Births over Deaths per 1,000 of Population.	Excess of Deaths over Births per 1,000 of Population.
			Male.	Female.	Total.	Male.	Female.	Total.			
	Northern Deccan Division.										
1	Khándesh	1,028,642	13,478	12,026	25,504	25·40	24·57	24·79	112·07	6·91	....
2	Násik	734,386	10,640	9,861	20,501	28·23	27·61	27·92	107·90	7·73	....
3	Ahmednagar	773,938	9,841	9,127	18,968	24·94	24·10	24·51	107·82	3·13	....
4	Poona	907,235	7,927	7,212	15,139	17·00	16·40	16·70	109·91	2·88	....
5	Sholápur	718,034	3,475	3,243	6,718	9·41	9·30	9·35	107·15	....	22·96
	Southern Deccan Division.										
6	Sátára	1,061,002	13,805	13,288	27,093	25·60	25·47	25·54	103·89	5·53	....
7	Belgaum	988,750	9,878	9,292	19,170	20·63	20·21	20·42	106·31	....	7·98
8	Dhárwár	988,037	8,767	8,160	16,927	17·32	16·93	17·13	107·44	....	7·72
9	Kaládgi	816,037	3,539	3,259	6,798	8·48	8·18	8·33	108·60	....	15·19
	Konkan Division.										
10	Kánara	398,406	4,934	4,648	9,582	24·00	24·21	24·05	106·15	....	10·17
11	Ratnágiri	1,019,136	7,065	6,544	13,609	14·39	12·39	13·36	108·00	....	13·86
12	Kolába	350,405	3,817	3,534	7,351	21·44	20·49	20·98	108·00	2·78	....
13	Bombay City	644,405	7,621	6,720	14,341	19·07	27·46	22·25	113·41	....	12·35
14	Thána	847,424	10,691	9,751	20,442	24·34	23·90	24·14	109·60	3·48	....
	Gujarát Division.										
15	Surat	607,087	6,774	6,289	13,063	22·26	20·76	21·51	107·71	....	7·66
16	Broach	350,322	2,276	1,901	4,177	12·47	11·32	11·92	119·72	....	26·81
17	Kaira	782,733	9,271	8,016	17,287	22·11	22·04	22·08	115·65	....	15·24
18	Panch Mahals	240,743	1,336	1,132	2,468	10·57	9·89	10·25	118·02	....	4·21
19	Ahmedabad	829,637	8,300	7,021	15,321	18·91	17·96	18·46	118·21	....	19·19
	Sind Division.										
20	Kurrachee	423,495	2,014	1,376	3,390	8·37	7·50	8·00	146·22	....	9·28
21	Hyderabad	721,947	2,401	1,549	3,950	6·03	4·77	5·47	155·00	....	8·15
22	Thar and Párkar	180,761	835	616	1,451	8·08	7·94	8·02	135·55	....	2·81
23	Shikárpur	776,227	2,335	1,547	3,882	5·50	4·39	5·00	150·33	....	5·22
24	Upper Sind Frontier	89,985	440	298	738	8·71	7·54	8·20	147·65	....	1·41
	Total for the Presidency	16,228,774	151,460	136,410	287,870	17·86	17·60	17·74	110·91	....	6·07

ANNUAL FORM NO. II.—DEATHS *registered in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during the year* 1879.

1	2	3	4	5			6	7			8		
No.	DISTRICTS.	Area in square miles.	Average Population per square mile.	Number of Deaths registered.			Number of Males died to every 100 deaths of Females.	Ratio of Deaths per 1,000 of the Population.			Mean ratio of Deaths per 1,000 during previous five years.		
				Male.	Female.	Total.		Male.	Female.	Total.	Male.	Female.	Total.
	Northern Deccan Division.												
1	Khándesh	9,802	104·10	9,949	8,443	18,392	117·84	18·75	16·95	17·88	25·98	23·70	24·88
2	Násik	8,140	90·22	7,769	6,679	14,448	116·35	20·61	19·78	20·19	28·96	26·74	27·88
3	Ahmednagar	6,647	116·43	8,716	7,848	16,564	111·06	22·04	20·73	21·38	31·79	28·25	30·05
4	Poona	5,099	177·92	6,843	5,750	12,593	119·00	14·68	12·92	13·82	24·74	24·23	25·21
5	Sholápur	4,499	159·59	12,270	10,919	23,189	112·38	33·20	31·31	32·31	32·01	28·05	30·08
	Southern Deccan Division.												
6	Sátára	4,804	220·86	11,071	10,162	21,233	108·90	20·52	19·46	20·01	31·43	28·27	29·88
7	Belgaum	4,592	204·43	14,081	12,593	26,674	111·82	29·40	27·37	28·40	43·98	38·58	41·33
8	Dhárwár	4,565	216·44	12,741	11,817	24,558	107·86	25·17	24·52	24·85	44·39	39·98	42·33
9	Kaládgi	5,696	143·26	9,789	9,401	19,190	104·79	23·44	23·60	23·52	41·27	35·38	38·39
	Konkan Division.												
10	Kánara	4,235	94·07	7,353	6,282	13,635	117·05	35·62	32·72	34·22	37·83	35·60	36·75
11	Ratnágiri	5,789	290·09	13,866	13,870	27,736	99·09	28·23	26·27	27·22	17·37	15·27	16·27
12	Kolába	1,482	236·44	3,435	2,956	6,391	116·40	19·29	17·15	18·24	15·92	14·31	15·10
13	Bombay City	22	29,291·13	11,855	10,439	22,294	113·57	29·66	42·66	34·60	30·05	43·37	35·10
14	Thána	4,052	209·14	9,335	8,162	17,497	114·37	21·25	19·99	20·66	23·51	21·24	22·64
	Gujarát Division.												
15	Surat	1,588	382·30	9,249	8,462	17,711	109·30	30·40	27·94	29·17	26·94	24·77	25·90
16	Broach	1,358	257·97	7,004	6,566	13,570	106·67	38·37	39·12	38·73	27·65	25·86	26·80
17	Kaira	1,561	501·43	16,137	13,076	29,213	123·41	38·50	35·96	37·32	26·99	24·07	25·85
18	Panch Mahals	1,731	139·08	1,919	1,564	3,483	122·70	15·19	13·67	14·47	31·05	26·78	28·44
19	Ahmedabad	3,844	215·80	16,824	14,419	31,243	116·67	38·34	36·88	37·65	27·85	26·77	27·34
	Sind Division.												
20	Kurrachee	14,091	30·05	4,506	2,821	7,327	159·73	18·76	15·38	17·30	14·63	13·37	13·98
21	Hyderabad	9,053	79·75	5,956	3,880	9,836	153·51	14·97	11·97	13·62	11·14	9·48	10·41
22	Thar and Párkar	12,729	14·20	1,084	876	1,960	123·74	10·50	11·30	10·84	11·52	11·31	11·43
23	Shikárpur	8,813	88·08	4,812	3,128	7,940	153·87	11·34	8·89	10·23	10·25	9·16	9·65
24	Upper Sind Frontier	1,913	48·37	527	338	865	155·92	10·44	8·55	9·61	9·14	18·54	8·87
	Total for the Presidency	124,105	130·77	207,091	180,451	387,542	114·76	24·41	23·29	23·88	27·76	25·68	26·77

Annual Form No. III.—DEATHS *registered in the* Districts *of the* Bombay Presidency *during each month of the year* 1879.

1	2	3												4	5
No.	Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total Deaths registered during the year.	No.
	Northern Deccan Division.														
1	Khándesh	1,501	1,131	1,166	1,327	1,827	1,106	1,384	1,866	1,675	1,732	1,883	1,794	18,392	1
2	Násik	1,671	1,093	1,003	1,028	1,045	909	1,303	1,458	1,179	1,159	1,251	1,349	14,448	2
3	Ahmednagar	1,337	1,038	955	1,130	1,052	1,194	1,691	2,180	1,676	1,340	1,392	1,579	16,564	3
4	Poona	1,277	910	866	875	886	894	1,043	1,234	1,115	1,077	1,139	1,367	12,393	4
5	Sholápur	2,032	1,203	1,009	1,144	1,209	1,530	3,126	3,118	2,579	2,596	1,992	1,551	23,189	5
	Southern Deccan Division.														
6	Sátára	1,870	1,439	1,483	1,666	1,699	1,663	1,742	2,198	2,028	1,794	1,742	1,909	21,233	6
7	Belgaum	2,493	2,247	2,209	2,368	2,336	2,068	2,141	2,365	2,215	1,938	2,182	2,112	26,674	7
8	Dhárwár	3,071	2,395	1,991	1,890	1,985	1,811	1,909	1,980	1,815	1,643	1,998	2,070	24,558	8
9	Kaladgi	1,623	1,154	1,270	1,439	1,260	1,560	1,898	2,353	2,235	1,869	1,294	1,235	19,190	9
	Konkan Division.														
10	Kánara	1,469	1,352	1,345	1,045	910	968	1,022	1,094	1,102	985	1,032	1,311	13,635	10
11	Ratnágiri	2,077	2,268	2,320	2,213	2,209	2,408	3,374	3,244	2,411	1,730	1,713	1,778	27,736	11
12	Kolába	652	436	508	383	390	407	536	680	602	575	575	647	6,391	12
13	Bombay City	2,022	1,842	1,936	1,804	2,001	1,515	1,699	2,020	1,835	1,793	1,850	1,977	22,294	13
14	Thána	1,500	1,227	1,377	1,177	1,163	1,280	1,281	1,596	1,517	1,482	1,956	1,941	17,497	14
	Gujarát Division.														
15	Surat	1,270	1,077	1,090	1,088	1,192	1,076	1,263	1,521	1,704	1,998	2,461	1,971	17,711	15
16	Broach	1,133	810	756	537	486	413	504	807	1,212	2,093	2,993	1,826	13,570	16
17	Kaira	1,905	1,426	1,323	1,172	1,469	1,289	1,677	2,201	3,430	5,608	5,249	2,758	29,713	17
18	Panch Maháls	492	424	317	162	166	146	215	202	201	347	433	318	3,483	18
19	Ahmedabad	2,859	2,045	1,857	1,679	1,975	1,429	1,728	2,052	3,186	4,178	4,839	3,420	31,243	19
	Sind Division.														
20	Kurrachee	749	573	466	507	777	1,092	776	422	389	405	506	665	7,327	20
21	Hyderabad	1,279	1,045	952	632	979	1,361	469	394	484	561	800	910	9,856	21
22	Thar and Párkar	184	273	174	161	189	216	90	92	97	135	173	176	1,960	22
23	Shikárpur	694	621	466	445	785	1,208	516	391	514	830	739	731	7,940	23
24	Upper Sind Frontier	82	74	90	71	48	141	46	45	52	60	73	83	865	24
	Total for the Presidency ..	34,942	28,103	26,935	25,943	28,029	27,585	31,433	35,513	35,293	37,913	40,265	35,588	387,542	
	Ratio of Deaths per 1,000 in each month	2·15	1·73	1·66	1·59	1·70	1·76	1·90	2·19	2·17	2·34	2·50	2·19	23·88	

Annual Form No. IV.—DEATHS *registered according to Age in the* Districts *of the* Bombay Presidency *during the year* 1879.

1	2	3		4		5		6		7		8		9		10		11		12
No.	Districts.	Under 1 year.		1 year and under 6.		6 and under 12.		12 and under 20.		20 and under 30.		30 under 40.		40 and under 50.		50 and under 60.		60 and upwards.		No.
		Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
	Northern Deccan Division.																			
1	Khándesh	1,863	1,518	2,010	1,879	543	422	407	401	846	906	1,003	730	1,012	696	1,171	860	1,094	1,630	1
2	Násik	1,296	1,005	1,310	1,212	512	476	628	598	804	848	843	679	815	523	784	545	777	793	2
3	Ahmednagar	1,303	1,089	1,347	1,291	490	456	342	369	747	763	934	824	956	700	1,238	1,047	1,359	1,369	3
4	Poona	634	483	818	641	407	294	435	428	799	690	819	681	909	650	1,001	853	1,021	1,030	4
5	Sholápur	594	494	1,190	1,091	1,224	1,156	858	650	1,356	1,511	1,818	1,660	1,939	1,444	1,922	1,596	1,369	1,317	5
	Southern Deccan Division.																			
6	Sátára	1,570	1,322	1,783	1,638	615	486	440	473	820	873	1,052	905	1,275	965	1,531	1,374	1,985	2,126	6
7	Belgáum	1,316	1,152	2,068	2,121	927	834	638	599	1,509	1,509	1,824	1,469	2,017	1,327	1,723	1,501	2,059	2,341	7
	Dhárwár	1,530	1,187	1,703	1,616	836	842	777	752	1,414	1,562	1,621	1,466	1,688	1,350	1,604	1,442	1,568	1,609	8
	Kaládgi	333	305	814	830	737	751	631	637	1,238	1,250	1,573	1,461	1,737	1,423	1,532	1,332	1,194	1,467	9
	Konkan Division.																			
10	Kánara	1,041	866	753	742	329	335	476	468	1,132	1,127	1,135	890	961	572	852	641	674	731	10
11	Ratnágiri	615	644	1,397	1,404	787	675	815	782	1,566	1,632	1,738	1,612	1,877	1,722	2,184	2,088	2,887	3,313	11
12	Kolába	405	303	595	556	252	217	187	170	365	367	420	314	411	297	394	292	426	440	12
13	Bombay City	2,768	2,586	1,854	1,920	448	526	696	930	1,699	1,490	1,548	896	1,019	587	998	696	825	888	13
14	Thána	1,463	935	1,692	1,592	550	523	457	517	1,115	1,128	1,240	905	1,199	736	1,049	837	879	969	14
	Gujarát Division.																			
15	Surat	1,330	1,123	2,078	2,068	545	512	377	369	792	842	916	739	980	639	988	702	1,233	1,468	15
16	Broach	669	612	1,588	1,521	345	341	258	255	556	663	769	608	988	682	927	762	904	1,032	16
17	Kaira	1,826	1,748	3,237	2,724	797	534	639	429	1,177	991	1,644	1,135	2,014	1,209	2,217	1,560	2,526	2,746	17
18	Panch Mahals	254	221	318	325	150	96	110	91	192	162	264	169	243	138	252	171	136	191	18
19	Ahmedabad	1,870	1,680	3,013	2,761	1,455	1,313	1,322	998	1,716	1,533	1,894	1,501	2,064	1,508	1,940	1,632	1,550	1,493	19
	Sind Division.																			
20	Kurrachee	365	306	355	295	278	207	257	206	646	457	843	495	663	317	476	235	623	393	20
21	Hyderabad	422	391	483	387	388	256	405	277	873	582	976	573	1,000	519	723	368	686	527	21
22	Thár and Párkar	124	123	119	119	69	72	77	56	119	88	146	90	147	94	143	94	140	140	22
23	Shikárpur	464	434	452	412	350	233	329	186	655	478	905	440	705	290	475	232	477	422	23
24	Upper Sind Frontier ..	47	62	31	23	46	28	38	25	71	57	111	51	90	36	50	25	43	31	24
	Total for the Presidency ..	23,802	20,557	31,008	29,168	13,060	11,585	11,599	10,667	22,207	21,309	26,636	20,113	26,719	18,429	26,225	20,886	26,435	27,737	
	Ratio per 1,000 living ..	81·13	71·06	21·06	20·74	9·68	10·65	9·59	9·27	13·84	13·76	22·74	19·77	36·25	29·36	63·99	54·68	121·60	117·71	

ANNUAL FORM NO. V.—DEATHS *registered according to* CLASSES *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during the year* 1879.

1	2	3					4					5				
No.	Districts.	Population according to Census of 1872.					Number of Deaths registered.					Ratio of Deaths per 1,000 of Population.				
		Mahomedans.	Hindus.	Christians.	Other classes.	Total.	Mahomedans.	Hindus.	Christians.	Other classes.	Total.	Mahomedans.	Hindus.	Christians.	Other classes.	Total.
	Northern Deccan Division.															
1	Khándesh	79,359	948,279	517	487	1,028,642	1,404	16,838	1	149	18,392	17·69	17·76	1·93	305·95	17·88
2	Násik	32,148	693,338	1,064	7,839	734,386	998	13,293	13	144	14,448	31·04	19·17	12·22	19·00	20·19
3	Ahmednagar	42,435	729,367	941	1,195	773,938	956	15,458	33	117	16,564	22·53	21·19	35·00	93·00	21·33
4	Poona	39,583	862,165	3,862	1,625	907,235	570	11,802	63	158	12,593	14·40	13·70	16·31	96·00	13·82
5	Sholápur	50,655	666,985	319	75	718,034	1,882	21,093	18	196	23,189	37·15	31·62	..	..	32·31
	Southern Deccan Division.															
6	Sátára	34,957	1,025,349	600	96	1,061,002	653	20,534	6	40	21,233	18·68	20·03	10·00	41·66	20·01
7	Belgaum	71,386	862,215	5,067	82	938,750	1,921	24,536	161	56	26,674	26·91	28·46	31·37	681·30	28·40
8	Dhárwár	114,087	872,390	1,522	38	988,037	2,527	21,678	38	315	24,558	22·15	24·85	25·00	..	24·85
9	Kaládgi	87,399	728,585	52	1	816,037	1,954	16,713	5	518	19,190	27·00	23·00	..	..	23·52
	Konkan Division.															
10	Kánara	21,755	364,290	12,189	172	398,406	774	12,420	264	77	13,635	35·58	34·09	29·86	441·89	34·22
11	Ratnágiri	74,834	940,885	3,244	173	1,019,136	1,533	25,994	59	150	27,736	20·48	27·63	18·21	..	27·22
12	Kolába	17,194	330,914	208	2,089	350,405	269	6,079	20	23	6,391	15·64	18·06	96·15	11·01	18·24
13	Bombay City	137,644	423,801	34,724	48,236	644,405	5,721	14,737	747	1,089	22,294	41·56	34·77	21·51	22·57	34·60
14	Thána	38,835	765,886	37,029	5,674	847,424	788	15,658	982	69	17,497	20·29	20·44	26·52	12·16	20·66
	Gujarát Division.															
15	Surat	52,157	541,738	334	12,858	607,087	1,338	16,092	1	280	17,711	25·65	29·70	2·99	21·77	29·17
16	Broach	69,033	277,032	86	4,171	350,322	2,685	10,781	..	104	13,570	38·89	38·91	..	24·93	38·73
17	Kaira	70,741	711,619	305	68	782,733	2,408	26,774	19	12	29,213	34·03	37·62	62·29	176·47	37·32
18	Panch Mahála	14,921	225,775	30	17	240,743	243	3,238	..	2	3,483	16·28	14·34	..	117·64	14·47
19	Ahmedabad	81,373	747,027	650	587	829,637	3,226	27,935	11	71	31,243	39·64	37·39	16·92	120·95	37·65
	Sind Division.															
20	Kurrachee	347,551	72,517	2,643	784	423,495	5,537	1,659	59	72	7,327	15·93	22·88	22·32	91·84	17·30
21	Hyderabad	558,272	102,613	391	60,671	721,947	6,982	2,769	3	82	9,836	12·51	26·99	7·67	1·35	13·62
22	Thar and Párkar	96,604	62,500	35	21,622	180,761	949	749	..	262	1,960	9·82	11·98	..	12·12	10·78
23	Shikárpur	628,662	146,482	238	845	776,227	5,517	2,391	5	27	7,940	8·77	16·32	21·01	31·95	10·23
24	Upper Sind Frontier	81,177	8,715	22	71	89,985	626	231	1	7	865	7·71	26·51	45·45	99·96	9·61
	Total of the Presidency	2,842,762	13,110,464	106,072	1,69,476	16,228,774	51,461	329,452	2,609	4,020	387,542	18·10	25·13	24·60	23·72	23·88

N. B.—"Hindus" include Jains as well as all castes professing Hinduism. "Other classes" include Parsis, Chinese, and Jews.

ANNUAL FORM NO. VI.—DEATHS *registered from* DIFFERENT CAUSES *in the* DISTRICTS *and* TOWNS *of the* BOMBAY PRESIDENCY *during the year* 1879.

1	2	3	4	5	6	7	8					9	10	11								1
No.	Districts and Towns.	Population according to Census of 1872.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.					All other Causes.	Total Deaths from all causes.	Ratio of Deaths per 1,000 of Population.								No.
							Suicide.		Wounding or Accident.	Snake-bite or killed by wild beasts.	Total.			Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other Causes.	From all Causes.		
							Male.	Female.												For the year.	Mean of previous five years.	
	A.—DISTRICTS.																					
	Northern Deccan Division.																					
1	Khándesh	985,308	127	92	14,181	2,371	10	17	214	37	278	450	17,499	0·13	0·09	14·39	2·40	0·28	0·46	17·76	25·01	1
2	Násik	689,355	83	4	11,043	1,037	8	3	122	34	167	825	13,159	0·12	0·01	17·47	1·53	0·24	1·20	20·09	26·80	2
3	Ahmednagar	727,136	146	4	11,933	1,411	6	7	171	8	192	1,615	15,301	0·20	..	16·41	1·94	0·26	2·25	21·32	29·41	3
4	Poona	778,051	3	10	8,562	818	9	14	204	24	251	872	10,516	..	0·01	11·00	1·05	0·32	1·09	13·47	25·12	4
5	Sholápur	629,796	8	1	9,791	1,024	3	12	208	2	225	3,225	14,274	0·01	..	15·55	1·63	0·36	5·12	22·67	27·12	5
	Southern Deccan Division.																					
6	Sátára	1,014,046	..	3	16,717	1,396	11	42	313	53	419	1,779	20,314	..	..	16·48	1·38	0·41	1·62	20·03	29·73	6
7	Belgaum	882,273	..	5	17,816	1,785	62	67	230	28	387	4,952	24,945	..	0·01	20 20	2·02	0·44	5·61	28·28	40·80	7
8	Dhárwár	892,282	..	..	16,564	2,345	52	92	200	26	370	3,357	22,636	..	..	18·56	2·63	0·41	3·76	25·36	43·03	8
9	Kaládgi	809,445	..	10	14,358	462	80	110	304	20	514	3,554	18,898	..	0·01	17·74	0·52	0·64	4·39	23·33	38·12	9
	Konkan Division.																					
10	Kánara	374,211	..	8	8,637	1,020	9	6	137	31	183	3,322	13,170	..	0·02	23·08	2·72	0·48	8·87	35·19	37·81	10
11	Ratnágiri	993,526	26	24	19,740	2,015	18	16	339	158	531	4,925	27,261	0·02	0·02	19·86	2·02	0·53	4·95	27·43	15·88	11
12	Kolába	338,301	169	41	4,506	133	2	1	92	19	114	1,106	6,069	0·49	0·12	13·31	0·38	0·33	3·26	17·93	14·67	12
13	Thána	809,485	747	4	13,592	198	18	9	241	139	407	1,724	16,672	0·92	..	16·80	0·24	0·50	2·13	20·59	22·40	13
	Gujarát Division.																					
14	Surat	488,623	474	3	11,942	1,449	7	13	204	59	274	1,156	15,298	0·97	..	24·44	2·96	0·56	2·36	31 30	26·36	14
15	Broach	298,466	4	..	10,566	819	2	10	82	41	135	516	12,040	0·01	..	35·40	2·74	0·45	1·72	40·32	28·07	15
16	Kaira	719,305	55	3	24,559	1,538	18	14	282	51	365	747	27,267	0·08	..	34·14	2·14	0·51	1·03	37·90	25·78	16
17	Panch Mahála	218,630	..	2	2,637	114	6	7	71	34	118	78	2,949	..	0·01	12·06	0·52	0·53	0·35	13·48	27·84	17
18	Ahmedabad	660,795	243	15	18,953	1,517	3	18	119	43	183	949	21,865	0·37	0·02	28·69	2·29	0·27	1·43	33·08	22·93	18
	Sind Division.																					
19	Kurrachee	369,969	1,010	3	3,721	58	1	3	182	77	263	643	5,698	2·73	0·01	10·06	0·15	0·71	1·74	15·41	13·44	19
20	Hyderabad	686,675	1,391	54	6,074	94	6	5	297	201	509	278	8,400	2·03	0·08	8·84	0·14	0·74	0·40	12·23	8·71	20
21	Thar and Parkár	176,762	74	7	1,669	16	..	..	27	31	58	62	1,886	0·42	0·04	9·44	0·09	0·33	0·35	10·67	10·53	21
22	Shikárpur	714,159	1,222	276	4,436	157	5	6	172	42	225	140	6,456	1·71	0·39	6·21	0·22	0·31	0·20	9·04	8·74	22
23	Upper Sind Frontier	84,780	87	61	441	10	..	..	12	3	15	11	625	1·03	0·72	5·20	0·12	0·18	0·13	7·37	7·04	23
	Total of Districts	14,341,379	5,869	630	252,443	21,787	336	472	4,223	1,152	6,183	36,286	323,198	0·41	0·04	17·60	1·52	0·43	2·53	22·53	26·09	

ANNUAL FORM No. VI.—DEATHS *registered from* DIFFERENT CAUSES *in the* DISTRICTS *and* TOWNS *of the* BOMBAY PRESIDENCY *during the year* 1879—continued.

1	2	3	4	5	6	7	8					9	10	11							12
							Injuries.							Ratio of Deaths per 1,000 of Population.							
							Suicide.												From all Causes.		
No.	Districts and Towns.	Population according to Census of 1872.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Male.	Female.	Wounding or Accident.	Snake-bite or killed by wild beasts.	Total.	All other Causes.	Total Deaths from all Causes.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other Causes.	For the year.	Mean of previous five years.	No.
	B.—TOWNS.																				
	Khándesh District.																				
1	Dhulia	12,489	4	5	170	41	..	4	3	..	7	56	283	0·32	0·4	13·61	3·28	0·56	4·48	22·66	19·53	1
2	Nándurbár	7,235	..	1	88	28	..	..	1	2	3	4	125	..	0·14	12·21	4·02	0·42	0·56	17·35	21·69	2
3	Chopda	13,699	5	..	163	1	..	..	6	..	6	1	176	0·36	..	11·90	0·07	0·44	0·07	12·85	36·84	3
4	Nasirabad	9,941	..	..	293	9	..	..	3	..	3	4	309	..	..	29·47	0·90	0·30	0·40	31·08	32·06	4
	Násik District.																				
5	Násik	22,436	..	..	432	56	2	..	6	1	9	288	785	..	..	19·25	2·50	0·41	14·84	35·00	54·54	5
6	Yeola	17,461	51	1	161	16	1	..	3	..	4	129	361	2·92	..	9·22	0·92	0·21	7·40	20·75	39·85	6
7	Devláli Cantonment	894	..	..	13	3	..	..	..	..	..	6	22	..	..	14·54	3·35	..	6·71	24·60	29·01	7
8	Málegaon Cantonment	4,240	..	..	60	10	..	..	..	..	..	50	120	..	..	14·15	2·36	..	11·80	28·31	45·96	8
	Ahmednagar District.																				
9	Ahmednagar	32,841	37	1	356	60	1	1	1	..	3	551	1,008	1·13	..	10·84	1·82	..	17·80	31·59	46·00	9
10	Sangamner	9,978	3	..	118	5	..	..	2	..	2	62	190	0·30	..	11·83	0·50	0·21	19·14	32·57	10	
11	Ahmednagar Cantonment	3,983	..	..	18	5	1	..	3	..	4	38	65	..	..	4·52	1·20	1·00	9·54	16·26	23·31	11
	Poona District.																				
12	Poona City	90,436	97	14	723	71	3	3	38	2	46	587	1,538	1·07	0·15	1·00	0·79	0·65	6·50	17·06	31·42	12
13	Junnar	10,298	..	..	63	5	..	1	1	..	2	11	81	..	..	6·12	0·50	0·19	1·07	8·00	16·70	13
14	Poona and Kirkee Cantonments	28,450	..	..	251	43	..	..	9	..	9	155	458	..	..	8·82	1·51	0·31	5·45	16·10	23·17	14
	Sholápur District																				
15	Sholápur	53,403	..	..	2,253	20	6	7	34	..	47	4,450	6,770	..	..	42·20	0·37	0·88	83·31	126·76	49·26	15
16	Bársi	18,560	14	..	344	3	1	..	11	..	12	280	753	0·75	..	18·53	0·16	0·65	20·47	40·56	44·88	16
17	Pandharpur	16,275	..	..	502	443	1	..	9	..	10	437	1,392	..	..	30·86	27·22	0·61	26·90	85·64	61·49	17
	Sátára District.																				
18	Sátára	24,484	..	..	278	87	1	3	4	..	8	117	490	..	..	11·35	3·55	0·33	4·77	20·00	36·20	18
19	Karad	11,410	..	..	151	7	..	..	4	..	4	64	226	..	..	13·23	0·62	0·35	5·69	19·89	25·89	19
20	Wái	11,062	..	..	140	4	1	..	2	..	3	56	203	..	..	12·66	0·36	0·27	5·06	18·35	34·10	20
	Belgaum District.																				
21	Belgaum	26,947	..	1	635	64	2	..	10	..	12	145	857	..	..	23·56	2·38	0·44	5·38	31·80	45·06	21
22	Gokák	12,612	..	..	180	7	3	2	3	1	9	37	233	..	..	14·27	0·55	0·71	2·93	18·48	50·61	22
23	Athni	11,388	..	..	186	17	1	1	9	1	12	179	394	..	..	16·34	1·47	1·04	15·45	34·00	59·84	23
24	Belgaum Cantonment	5,330	..	..	105	28	1	..	2	1	4	108	245	..	..	19·70	5·25	0·75	20·26	45·96	46·49	24
	Dhárwár District.																				
25	Dhárwár	27,136	..	..	378	41	11	3	10	1	25	202	646	..	..	13·93	1·51	0·92	7·44	23·80	33·05	25
26	Hubli	37,961	..	..	545	70	8	10	7	..	25	139	779	..	..	14·46	1·85	0·66	3·63	20·62	36·93	26
27	Gadag Betgeri	19,635	..	..	174	3	2	3	10	1	16	133	326	..	..	9·14	0·16	0·84	7·00	17·14	35·88	27
28	Ránebennur	11,623	..	..	141	2	1	..	7	1	9	19	171	..	..	12·13	0·18	0·77	1·63	14·71	34·00	28
	Kaládgi District.																				
29	Kaládgi	6,592	..	..	13	..	1	1	1	..	3	273	289	..	..	2·00	..	2·05	41·41	43·46	69·97	29
30	Kaládgi Cantonment	..	..	..	1	2	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	30
	Kánara District.																				
31	Kárwár	13,263	..	..	153	13	..	..	6	..	6	131	303	..	..	11·53	0·98	0·45	9·87	22·84	21·26	31
32	Kumpta	10,932	..	..	77	29	..	..	5	..	5	51	162	..	..	7·04	2·65	0·45	4·66	14·81	19·17	32
	Ratnagiri District.																				
33	Vengurla	14,906	..	..	125	43	1	..	11	1	13	83	264	..	..	8·33	2·86	0·86	5·59	17·60	16·77	33
34	Ratnágiri	10,614	..	..	90	34	..	..	2	..	2	85	211	..	..	8·47	3·20	0·18	8·00	19·87	19·39	34
	Kolába District.																				
35	Alibág	5,473	11	..	113	1	..	..	..	..	..	49	174	2·00	..	20·64	0·18	..	8·95	31·79	33·51	35
36	Mahád	6,831	..	..	108	1	..	..	..	1	1	38	148	..	..	16·28	0·45	0·30	5·73	22·77	22·03	36
	Thána District.																				
37	Thána	14,299	23	1	225	2	..	2	4	..	6	60	317	1·60	0·07	15·74	0·14	0·42	4·20	22·17	27·15	37
38	Kalyán	12,804	..	..	195	2	..	..	4	..	4	80	281	..	..	15·23	0·16	0·31	6·25	21·95	26·96	38
39	Panvel	10,836	..	..	187	14	..	..	3	..	3	23	227	..	..	17·26	1·29	0·28	2·12	20·95	27·40	39
	Bombay City District.																				
40	Bombay	644,405	323	478	8,441	2,467	47	31	314	6	398	10,187	22,294	0·50	0·74	13·10	3·83	0·62	15·81	34·60	35·10	40
	Surat District.																				
41	Surat	107,149	33	..	1,671	30	6	7	23	1	37	549	2,320	0·31	..	15·60	0·28	0·34	5·12	21·65	24·08	41
42	Bulsár	11,315	2	1	64	21	..	1	4	..	5	..	93	0·18	0·09	5·65	1·85	0·44	..	8·21	19·42	42
	Broach District.																				
43	Broach	36,932	4	1	762	6	1	1	18	..	20	248	1,041	0·11	0·03	20·63	0·16	0·54	6·71	28·18	22·75	43
44	Jambusar	14,924	..	..	427	56	..	..	2	..	2	4	489	..	..	28·61	3·75	0·13	0·27	32·76	12·90	44
	Kaira District.																				
45	Kaira	12,681	3	2	313	31	..	..	..	..	..	24	373	0·24	0·16	24·68	2·44	..	1·89	29·41	12·51	45
46	Nadiád	24,551	71	..	724	74	..	5	8	..	13	6	888	2·89	..	29·49	3·01	0·53	0·24	36·16	26·53	46
47	Borsad	12,214	..	..	374	12	..	1	5	1	7	7	400	..	..	30·62	0·98	0·57	0·57	32·74	21·51	47
48	Kapadvanj	13,982	..	..	257	21	..	1	2	..	3	4	285	..	..	18·38	1·50	0·21	0·29	20·38	29·77	48

ANNUAL FORM No. VI.—DEATHS *registered from* DIFFERENT CAUSES *in the* DISTRICTS *and* TOWNS *of the* BOMBAY PRESIDENCY *during the year* 1879—continued.

No.	Districts and Towns.	Population according to Census of 1872.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries. Suicide. Male.	Suicide. Female.	Wounding or Accident.	Snake-bite or killed by wild beasts.	Injuries. Total.	All other Causes.	Total Deaths from all Causes.	Ratio of Deaths per 1,000 of Population. Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other Causes.	From all Causes. For the year.	From all Causes. Mean of previous five years.	No.
	B.—TOWNS—*continued.*																					
	Panch Mahâls District.																					
49	Godhra	10,641	..	..	195	56	..	..	6	..	6	46	303	..	..	18·33	5·26	0·56	4·32	28·47	35·60	49
50	Dohad	11,472	..	..	223	..	2	..	4	..	6	2	231	..	..	19·44	...	0·52	0·17	20·13	33·53	50
	Ahmedabad District																					
51	Ahmedabad	116,873	18	..	5,900	197	5	1	8	..	14	2,124	8,253	0·15	..	50·48	1·69	0·12	18·17	70·61	54·73	51
52	Gogha	9,571	9	..	124	40	..	..	3	..	3	16	192	0·94	..	12·96	4·18	0·31	1·67	20·06	20·94	52
53	Viramgam	19,661	..	4	479	23	1	1	1	..	3	6	515	..	0·20	24·36	1·17	0·15	0·31	26·19	25·45	53
54	Dholka	20,854	4	..	294	7	2	1	5	1	9	12	326	0·19	..	14·10	0·34	0·43	0·57	15·63	15·64	54
55	Ahmedabad Cantonment	1,883	..	..	52	15	..	..	..	1	1	24	92	..	..	27·62	7·96	0·53	12·74	48·85	53·62	55
	Kurrachee District.																					
56	Kurrachee	53,526	165	4	1,166	50	2	2	11	1	16	228	1,629	3·08	0·08	21·78	0·93	0·30	4·26	30·43	18·40	56
	Hyderabad District.																					
57	Hyderabad	35,272	42	..	1,140	3	1	..	6	..	7	244	1,436	1·19	..	32·32	0·08	0·20	6·92	40·71	42·71	57
	Thar and Parkar District																					
58	Umarkot	3,999	..	..	70	3	..	..	..	..	..	1	74	..	..	17·50	0·75	..	0·25	18·50	26·85	58
	Shikârpur District.																					
59	Shikârpur	38,107	3	2	798	20	3	..	6	1	10	61	894	0·08	0·05	20·94	0·53	0·26	1·60	23·46	24·41	59
60	Sukkur	13,318	118	5	153	101	..	1	14	1	16	44	437	8·93	0·38	11·49	7·58	1·21	3·30	32·89	20·58	60
61	Larkhana	19,643	16	..	121	1	1	..	5	..	6	9	153	1·50	..	11·37	0·09	0·56	0·85	14·38	13·03	61
	Upper Sind Frontier District.																					
62	Jacobabad	5,205	12	5	127	37	..	..	5	..	5	54	240	2·31	0·96	24·40	7·11	0·96	10·37	46·11	38·86	62
	Total of Towns	1,887,395	1,068	526	34,083	4,562	120	94	684	26	924	23,181	64,344	0·57	0·28	18·06	2·42	0·49	12·28	34·10	30·61	
	Total for the Presidency	16,228,774	6,937	1,156	286,526	26,349	456	566	4,907	1,178	7,107	59,467	387,542	0·43	0·07	17·66	1·62	0·44	3·66	23·88	26·77	

N. B.—Districts A in this statement do not include the population or deaths of Towns B. In all the other statements "Districts" include Towns. Towns include one or more of the principal Towns in each District.

ANNUAL FORM No. VII.—DEATHS *registered from Cholera in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each month of the year* 1879.

No.	Districts.	Circles of Registration. Number in each District.	Circles of Registration. Number from which Deaths from Cholera were reported.	Villages. Number in each District.	Villages. Number from which Deaths from Cholera were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total. Male.	Total. Female.	Total. Total.	Ratio of Deaths per 1,000 of Population. Male.	Female.	Total.	Mean ratio per 1,000 of previous five years.	No.
	Northern Deccan Division																							
1	Khándesh	26	9	2,625	17	..	..	..	..	..	..	40	86	10	..	..	..	74	62	136	0·13	0·12	0·13	1·85	1
2	Násik	16	5	1,629	12	..	..	..	..	..	28	74	30	2	..	..	..	70	64	134	0·20	0·18	0·19	1·08	2
3	Ahmednagar	14	10	1,342	29	..	..	..	..	..	6	71	74	35	..	..	..	114	72	186	0·30	0·20	0·24	2·72	3
4	Poona	11	3	1,184	3	..	..	..	..	2	2	..	..	..	2	..	94	63	37	100	0·13	0·09	0·11	2·78	4
5	Sholápur	10	3	716	3	..	..	..	..	..	..	..	..	13	9	..	..	12	10	22	0·03	0·03	0·03	2·81	5
	Southern Deccan Division																							
6	Sátára	15	..	1,352	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3·32	6
7	Belgaum	11	..	1,085	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4·60	7
8	Dhárwár	18	..	1,413	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2·98	8
9	Kaládgi	10	..	1,201	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3·82	9
	Konkan Division.																							
10	Kánara	13	..	972	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1·92	10
11	Ratnágiri	10	1	1,249	4	..	..	..	..	..	22	4	..	..	..	..	..	7	19	26	0·01	0·03	0·03	0·94	11
12	Kolába	8	3	965	18	35	8	..	..	..	..	..	..	..	72	40	25	81	99	180	0·45	0·57	0·51	1·96	12
13	Bombay City	1	1	1	1	27	10	13	4	29	14	33	78	64	41	10	4	224	99	323	0·56	0·40	0·50	1·52	13
14	Thána	14	7	2,119	68	..	..	..	13	117	200	129	98	50	38	75	50	384	386	770	0·87	0·94	0·91	2·92	14
	Gujarát Division.																							
15	Súrat	10	9	778	45	..	..	..	1	81	30	30	24	123	195	25	..	242	267	509	0·80	0·88	0·83	1·57	15
16	Broach	8	3	405	3	..	..	..	4	1	3	..	..	..	..	..	..	5	3	8	0·03	0·01	0·02	1·66	16
17	Kaira	11	6	585	11	..	..	..	2	23	5	77	22	..	..	..	..	74	55	129	0·18	0·15	0·16	1·32	17
18	Panch Mahâls	7	..	663	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4·69	18
19	Ahmedabad	12	8	881	43	16	..	8	40	104	34	25	39	8	..	..	..	148	126	274	0·33	0·32	0·33	1·65	19
	Sind Division.																							
20	Kurrachee	14	13	3,328	184	..	..	..	..	219	607	322	26	1	..	..	..	723	452	1,175	3·01	2·46	2·77	0·02	20
21	Hyderabad	14	13	5,967	268	..	..	..	..	380	909	144	..	..	..	..	..	850	583	1,433	2·14	1·80	1·99	0·13	21
22	Thar and Parkár	8	1	1,585	11	..	..	..	..	8	66	..	..	..	..	..	..	47	27	74	0·46	0·35	0·41		22
23	Shikárpur	20	17	4,638	209	..	..	..	..	204	673	138	37	95	184	33	..	834	525	1,359	1·96	1·49	1·75		23
24	Upper Sind Frontier	4	4	1,015	7	..	..	..	..	8	85	6	..	..	..	..	..	55	44	99	1·09	1·11	1·10		24
	Total of the Presidency	285	116	37,698	936	78	18	21	64	1,176	2,684	1,088	510	401	541	183	173	4,007	2,930	6,937	0·17	0·38	0·43	2·85	

ANNUAL FORM No. VIII.—DEATHS *registered from* SMALL-POX *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each month of the year* 1879.

No.	Districts.	Circles of Registration. Number in each District.	Circles of Registration. Number from which Deaths from Small-pox were reported.	Villages. Number in each District.	Villages. Number from which Deaths from Small-pox were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total. Male.	Total. Female.	Total. Total.	Number of Death among Children. Under 1 Year.	Number of Death among Children. Under 12 Years.	Total Ratio of Deaths per 1,000 Population. Male.	Total Ratio of Deaths per 1,000 Population. Female.	Total Ratio of Deaths per 1,000 Population. Total.	Mean ratio per 1,000 of previous five years.	No.
	Northern Deccan Division.																										
1	Khándesh	26	6	2,625	13	74	..	3	1	9	..	4	1	4	..	..	..	35	43	98	2	31	0·16	0·09	0·10	1·36	1
2	Násik	16	3	1,629	4	..	1	..	..	..	1	..	1	2	..	..	..	2	3	5	3	3	0·01	0·01	0·01	1·21	2
3	Ahmednagar	14	2	1,342	3	1	..	..	..	..	..	1	..	1	..	..	..	2	3	5	1	..	0·01	0·03	0·01	0·62	3
4	Poona	11	5	1,184	6	2	7	4	2	..	1	2	1	1	..	..	..	12	12	24	4	5	0·03	0·03	0·03	0·55	4
5	Sholápur	10	1	716	1	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	0·35	5
	Southern Deccan Division.																										
6	Sátára	15	2	1,352	3	..	..	..	..	..	..	1	1	..	..	..	1	3	..	3	1	1	..	..	..	0·24	6
7	Belgaum	11	6	1,085	6	1	..	..	..	1	..	1	1	..	..	..	..	3	3	6	1	4	0·01	0·01	0·01	0·68	7
8	Dhárwár	18	..	1,413	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	0·78	8
9	Kaládgi	10	4	1,201	9	2	..	1	2	..	2	..	..	1	1	..	1	7	3	10	2	1	0·01	..	0·01	0·35	9
	Konkan Division.																										
10	Kánara	13	3	972	2	7	..	..	1	..	..	..	..	..	..	..	..	4	4	8	..	..	0·04	0·02	0·04	0·40	10
11	Ratnágiri	10	3	1,249	9	..	..	2	6	..	6	..	3	..	2	..	4	8	16	24	3	3	0·02	0·03	0·02	0·57	11
12	Kolába	8	4	965	15	1	..	..	4	5	3	8	4	10	..	3	3	24	17	41	8	17	0·13	0·09	0·11	0·68	12
13	Bombay City	1	1	1	1	21	47	95	124	86	45	34	8	3	1	5	9	223	255	478	179	251	0·56	1·04	0·74	1·49	13
14	Thána	14	3	2,119	5	..	..	..	..	1	4	..	..	..	..	..	..	2	3	5	1	1	..	0·01	0·01	0·61	14
	Gujarát Division.																										
15	Surat	10	3	778	3	..	..	2	..	2	..	..	..	..	..	..	..	3	1	4	2	2	0·01	..	0·01	1·07	15
16	Broach	8	1	405	1	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1	1	..	..	..	..	0·74	16
17	Kaira	11	4	585	4	..	1	..	1	..	1	2	..	..	..	..	..	2	3	5	1	3	..	0·01	0·01	0·51	17
18	Panch Mahals ..	7	2	663	2	..	..	1	..	..	..	1	..	..	..	..	..	2	..	2	1	..	0·02	..	0·01	0·26	18
19	Ahmedabad	12	5	881	6	..	..	..	..	2	7	8	1	1	..	..	..	13	6	19	9	5	0·03	0·02	0·02	0·49	19
	Sind Division.																										
20	Kurrachee	14	2	3,328	2	..	..	..	1	2	3	..	..	1	..	..	..	5	2	7	1	1	0·02	0·01	0·02	0·12	20
21	Hyderabad	14	4	5,967	21	19	8	9	4	5	4	1	..	..	1	..	3	19	35	54	9	35	0·03	0·11	0·07	0·16	21
22	Thar and Párkar ..	8	2	1,585	2	..	..	..	3	..	2	1	..	1	..	..	..	5	2	7	1	2	0·05	0·03	0·04	0·07	22
23	Shikárpur	20	19	4,638	132	9	4	22	36	47	40	23	18	15	9	12	48	161	122	283	50	121	0·38	0·35	0·36	0·11	23
24	Upper Sind Frontier ..	4	4	1,015	33	2	2	13	6	8	10	1	3	4	5	7	5	34	32	66	16	25	0·67	0·81	0·73	0·02	24
	Total for the Presidency	285	88	37,698	283	139	72	152	193	178	124	90	41	44	18	35	70	591	565	1,156	296	513	0·07	0·07	0·07	0·62	

ANNUAL FORM No. IX.—DEATHS *registered from* FEVERS *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each month of the year* 1879.

No.	Districts.	Circles of Registration. Number in each District.	Circles of Registration. Number from which Deaths from Fevers were reported.	Villages. Number in each District.	Villages. Number from which Deaths from Fevers were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total. Male.	Total. Female.	Total. Total.	Ratio of Deaths per 1,000 of Population. Male.	Ratio of Deaths per 1,000 of Population. Female.	Ratio of Deaths per 1,000 of Population. Total.	Mean ratio per 1,000 for previous five years.	No.
	Northern Deccan Division.																								
1	Khándesh	26	26	2,625	2,625	1,178	938	962	1,070	1,429	858	1,053	1,438	1,376	1,426	1,662	1,505	8,041	6,854	14,895	15·15	13·76	14·48	13·99	1
2	Násik	16	16	1,629	1,629	1,464	929	849	848	858	704	955	1,075	944	924	1,039	1,122	6,258	5,451	11,709	16·61	15·24	15·94	18·09	2
3	Ahmednagar	14	14	1,342	1,342	1,067	803	726	855	808	902	1,316	1,579	1,220	976	1,034	1,249	6,507	5,918	12,425	16·46	15·68	16·06	19·46	3
4	Poona	11	11	1,184	1,184	971	709	655	666	710	622	773	920	841	816	909	1,007	5,166	4,433	9,599	11·07	10·06	10·57	16·52	4
5	Sholápur	10	10	716	716	1,621	949	793	918	885	966	1,288	1,262	1,039	1,183	1,024	962	7,050	5,840	12,890	19·09	16·74	17·95	16·56	5
	Southern Deccan Division.																								
6	Sátára	15	15	1,352	1,229	1,552	1,200	1,250	1,418	1,456	1,405	1,364	1,648	1,566	1,421	1,410	1,596	9,014	8,272	17,286	16·71	15·85	16·30	17·42	6
7	Belgaum	11	11	1,085	995	1,892	1,681	1,669	1,779	1,777	1,534	1,468	1,487	1,383	1,219	1,528	1,505	9,947	8,975	18,922	20·77	19·52	20·16	18·38	7
8	Dhárwár	18	18	1,413	1,147	2,430	1,916	1,526	1,469	1,451	1,266	1,267	1,293	1,192	1,089	1,423	1,480	9,113	8,689	17,802	18·01	18·02	18·02	22·40	8
9	Kaládgi	10	10	1,201	885	1,331	913	1,017	1,186	977	1,164	1,305	1,640	1,644	1,353	994	946	7,422	6,950	14,372	17·77	17·44	17·61	20·76	9
	Konkan Division.																								
10	Kánara	13	13	972	972	994	912	916	720	580	616	631	636	699	669	656	832	4,632	4,235	8,867	22·44	22·03	22·25	20·38	10
11	Ratnágiri	10	10	1,249	1,249	1,312	1,554	1,767	1,655	1,655	1,892	2,458	2,371	1,734	1,203	1,130	1,224	9,719	10,236	19,955	19·79	19·39	19·58	7·76	11
12	Kolába	8	8	965	965	492	327	336	286	280	264	389	318	497	373	413	505	2,573	2,154	4,727	14·45	12·50	13·50	8·98	12
13	Bombay City	1	1	1	1	761	718	787	670	735	521	597	765	684	718	735	770	4,569	3,881	8,441	11·41	15·86	13·10	12·05	13
14	Thána	14	14	2,119	2,319	1,315	1,069	1,194	1,033	853	874	936	1,152	1,219	1,190	1,655	1,709	7,521	6,678	14,199	17·13	16·36	16·76	18·48	14
	Gujarát Division.																								
15	Surat	10	10	778	710	1,006	855	868	833	856	792	951	1,135	1,204	1,447	2,083	1,651	7,066	6,611	13,677	23·22	21·85	22·63	17·17	15
16	Broach	8	8	405	403	981	673	499	362	348	313	410	686	1,054	1,851	2,850	1,728	6,084	5,671	11,755	33·34	33·79	33·55	20·71	16
17	Kaira	11	11	585	561	1,420	1,284	1,145	986	1,184	1,079	1,565	1,849	3,187	5,257	4,967	2,554	14,416	11,812	26,227	34·39	37·48	35·50	19·42	17
18	Panch Mahals ..	7	7	663	412	422	371	256	148	136	112	184	241	235	322	407	291	1,686	1,369	3,055	13·35	11·96	12·69	18·67	18
19	Ahmedabad	12	12	881	720	2,267	1,663	1,512	1,281	1,446	1,056	1,253	1,576	2,665	3,699	4,329	3,060	13,797	12,010	25,807	31·44	30·72	31·10	18·18	19
	Sind Division.																								
20	Kurrachee	14	14	3,328	1,506	655	509	396	413	440	389	328	270	281	300	289	537	2,988	1,899	4,887	12·44	10·36	11·54	10·96	20
21	Hyderabad	14	14	5,967	1,966	1,174	965	882	557	511	319	292	262	322	468	732	830	4,252	2,962	7,214	10·69	9·14	9·92	8·53	21
22	Thar and Párkar ..	8	8	1,585	713	176	260	168	152	166	134	70	74	87	124	160	168	945	794	1,739	9·15	10·25	9·62	9·83	22
23	Shikárpur	20	20	4,638	1,603	625	563	494	362	477	415	278	243	342	556	615	628	3,287	2,221	5,508	7·74	6·31	7·10	8·67	23
24	Upper Sind Frontier ..	4	4	1,015	160	73	62	62	52	22	38	28	33	38	40	57	60	335	233	568	6·64	5·90	6·31	7·54	24
	Total for the Presidency	285	285	37,698	25,842	27,179	21,823	20,692	19,723	20,949	18,215	20,769	24,083	25,333	28,618	34,142	27,899	152,378	134,148	286,526	17·96	17·32	17·66	15·80	

ANNUAL FORM No. X.—DEATHS *registered from* BOWEL COMPLAINTS *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each month of the year* 1879.

No.	Districts.	Circles of Registration.		Villages.		5												6			7			8	No.
		Number in each District.	Number from which Deaths from Bowel Complaints were reported.	Number in each District.	Number from which Deaths from Bowel Complaints were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of Deaths per 1,000 of Population.			Mean Ratio per 1,000 for previous five years.	
																		Male.	Female.	Total.	Male.	Female.	Total.		
	Northern Deccan Division.																								
1	Khandesh	26	26	2,625	910	199	143	150	184	300	179	207	281	207	221	166	214	1,372	1,079	2,451	2·59	2·17	2·38	3·35	1
2	Násik	16	16	1,629	353	89	61	58	88	90	78	126	157	103	84	92	93	632	490	1,122	1·68	1·37	1·53	2·36	2
3	Ahmednagar	14	14	1,342	339	105	101	63	98	87	100	165	189	175	136	126	136	846	635	1,481	2·14	1·68	1·91	3·43	3
4	Poona	11	11	1,184	348	106	51	68	63	50	51	91	115	96	94	62	90	545	392	937	1·17	0·90	1·03	1·97	4
5	Sholapur	10	10	716	209	122	82	89	76	83	150	156	161	194	160	112	114	842	648	1,490	2·28	1·86	2·07	3·26	5
	Southern Deccan Division.																								
6	Sátára	15	15	1,352	289	136	91	82	74	82	77	132	252	209	132	110	117	783	711	1,494	1·45	1·36	1·41	3·57	6
7	Belgaum	11	11	1,085	331	142	132	114	132	138	123	171	225	196	166	185	177	1,043	858	1,901	2·18	1·87	2·02	3·39	7
8	Dhárwár	18	18	1,413	517	261	177	175	160	190	163	196	239	214	224	215	247	1,346	1,115	2,461	2·66	2·31	2·50	5·48	8
9	Kaládgi	10	10	1,201	114	38	27	25	25	34	37	47	50	40	64	45	32	265	199	464	0·63	0·59	0·57	2·37	9
	Konkan Division.																								
10	Kánara	13	13	972	270	105	96	100	80	73	68	89	110	116	69	73	83	645	417	1,062	3·12	2·17	2·66	3·67	10
11	Ratnágiri	10	10	1,249	489	203	231	145	117	111	144	293	202	179	128	133	156	1,193	899	2,092	2·43	1·70	2·05	1·83	11
12	Kolába	8	8	965	41	11	6	13	15	8	6	21	11	8	20	9	7	75	60	135	0·43	0·35	0·39	0·62	12
13	Bombay City	1	1	1	1	299	232	226	231	153	149	193	223	209	183	169	200	1,425	1,042	2,467	3·56	4·26	3·83	3·81	13
14	Thána	14	14	2,119	65	30	10	23	13	21	13	28	23	11	15	16	13	130	86	216	0·30	0·21	0·25	0·54	14
	Gujarát Division.																								
15	Surat	10	10	778	277	112	80	80	76	94	107	101	159	188	208	159	134	838	662	1,500	2·73	2·19	2·47	3·23	15
16	Broach	8	8	405	157	69	60	187	95	73	53	35	42	49	129	57	32	436	445	881	2·38	2·65	2·51	1·44	16
17	Kaira	11	11	585	259	118	86	93	93	116	95	124	225	197	217	176	136	981	695	1,676	2·34	1·91	2·14	2·64	17
18	Panch Mahals	7	6	663	33	48	37	9	4	9	6	4	8	10	13	10	12	81	89	170	0·64	0·78	0·71	0·44	18
19	Ahmedabad	12	12	881	227	240	152	116	99	126	97	171	162	233	171	134	98	1,059	740	1,799	2·41	1·89	2·16	1·51	19
	Sind Division.																								
20	Kurrachee	14	11	3,328	35	5	6	7	13	10	10	8	11	5	12	7	14	53	55	108	0·22	0·30	0·25	0·17	20
21	Hyderabad	14	13	5,967	52	4	5	3	2	5	4	12	11	19	12	8	12	73	24	97	0·18	0·07	0·13	0·08	21
22	Thar and Párkar ..	8	4	1,585	14	..	1	1	1	1	5	3	1	..	..	4	2	13	6	19	0·13	0·08	0·10	0·25	22
23	Shikárpur	20	17	4,638	75	29	24	15	15	25	27	23	17	11	35	34	24	208	71	279	0·49	0·20	0·36	0·25	23
24	Upper Sind Frontier ..	4	3	1,015	10	2	1	3	6	4	3	1	6	2	3	4	12	33	14	47	0·65	0·35	0·52	0·23	24
	Total for the Presidency	285	272	37,698	5,395	2,473	1,892	1,836	1,760	1,885	1,745	2,397	2,880	2,674	2,496	2,156	2,155	14,917	11,432	26,349	1·76	1·47	1·62	2·40	

A.—VACCINE DEPARTMENT.

Statement No. I. showing particulars of Vaccination in the Bombay Presidency during the year 1879-80.

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average Population per Square Mile.	Average number of Vaccinators employed throughout the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccinations.				Re-vaccination.		Percentage of Successful Cases.		Persons successfully Vaccinated per 1,000 of Population.	Average annual number of Persons successfully Vaccinated during previous five years.		Average annual number of Deaths from Small-pox during previous five years.	
									Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.		No.	Ratio per 1,000.	No.	Ratio per 1,000.
										Under 1 year.	Over 1 and under 6 years.	Total of all Ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	THE NORTHERN DECCAN REGISTRATION DISTRICT.				Males.	Females.	Total.														
	Kha'ndesh Collectorate—																				
1	Dhulia Town	12,489	1248·90	1	346	355	701	701	701	583	116	701	..	..	100·00	..	56·13	776	62·13	9	0·72
2	Nandurbár Town	7,205	554·23	..	Vide Statement No. III.													26	3·61	10	1·39
3	Chopda Town, Local Fund	13,699	595·65	1	122	112	234	234	234	199	35	234	..	..	100·00	..	17·81	87	6·35	19	1·38
4	Nasirabad Town do.	9,941	584·76	1	151	162	313	313	313	189	123	312	..	..	99·68	..	31·31	93	9·36	10	1·01
5	In the 22 Rural Circles, Local Fund	985,308	101·17	22	P. 13,784 R. 438	13,797 175	27,581 613	1,282	27,670	14,958	11,237	27,027	615	438	97·99	71·45	27·87	27,110	27·50	1,478	1·50
	Total	1,028,642	104·94	25	P. 14,403 R. 438	14,426 175	28,829 613	1,178	28,927	15,929	11,510	28,274	615	438	99·60	71·45	27·91	28,002	27·31	1,526	1·48
	Na'sik Collectorate—																				
6	Yeola Town	17,461	8730·50	..	..	..	..	Vide Statement No. III.					..	..	..	..	..	74	4·24	37	2·12
7	Násik Town	22,436	11218·0	1	P. 342 R. 49	400 31	742 80	906	742	498	216	717	80	59	96·62	73·75	34·39	738	32·45	45	2·01
8	Devlali Cantonment				P. 15 R. 38	22 9	37 47		37	29	8	37	47	33	100·00	70·21	78·13	36	40·27	..	..
	Do. do. Local Fund	894	....	..	24	22	46	..	46	35	6	44	..	..	95·65	..	49·22				
9	Málegaon do. do.	4,240	4240	..	72	60	132	..	132	120	7	127	..	..	96·21	..	29·95	59	13·91	..	..
10	In the 12 Rural Circles, do.	689,355	84·74	12	P. 8,278 R. 768	8,223 211	16,501 979	1,457	16,564	10,876	4,712	15,902	979	667	95·82	68·13	24·04	16,501	23·94	804	1·17
	Total	734,386	90·22	13	P. 8,731 R. 855	8,727 251	17,458 1,106	1,428	17,521	11,558	4,949	16,827	1,106	759	96·38	68·63	23·95	17,408	23·70	886	1·21
	Ahmednagar Collectorate—																				
11	Sangamner Town	9,978	623·62	..	..	..	..	Vide Statement No. III.					..	..	..	..	..	..	..	22	2·21
12	Ahmednagar Town	32,841	4105·12	1	P. 636 R. 3	594 1	1,230 4	1,271	1,230	904	298	1,230	4	4	100·00	100·00	37·37	1,295	39·13	37	1·13
13	Do. Cantonment	5,983	995·75		19	18	37		37	33	4	37	..	..	100·00	..	92·89	58	14·56	..	..
14	In the 11 Rural Circles, Local Fund	727,136	109·86	11	P. 8,584 R. 177	8,418 87	17,002 264	1,570	17,023	11,561	5,151	16,781	264	153	98·70	57·95	23·29	19,962	27·45	422	0·58
	Total	775,938	116·43	12	P. 9,239 R. 180	9,030 88	18,269 268	1,545	18,290	12,498	5,453	18,018	268	157	98·79	58·58	23·52	21,315	28·83	481	0·62
	Poona Collectorate—																				
15	Junnar Town	10,298	532·66	..	..	..	..	Vide Statement No. III.					..	..	..	..	..	21	2·04	15	1·46
16	Khed do.	6,446	....	1	333	269	602	602	602	262	329	591	..	..	98·17	..	91·68	658	102·08	..	..
17	Poona City	90,436	22609·0	2	P. 1,365 R. 765	1,105 100	2,470 865	1,667	2,471	1,334	940	2,237	865	315	92·50	56·42	28·77	2,343	25·91	105	1·16
18	Poona and Kirkee Cantonments	28,450	7112·50	1	P. 539 R. 384	400 89	939 473	1,412	939	699	237	939	473	278	100·00	58·77	42·78	901	31·67	19	0·66
19	In the 8 Rural Circles, Local Fund	771,605	152·38	10	P. 6,574 R. 102	6,272 43	12,846 145	1,290	12,858	5,431	6,894	12,551	145	106	97·63	73·10	16·46	14,220	18·43	368	0·48
	Total	907,235	177·92	14	P. 8,811 R. 1,251	8,046 232	16,857 1,483	1,310	16,870	7,726	8,400	16,368	1,483	699	97·09	46·46	18·81	18,143	20·00	507	0·56

Statement No. I. showing particulars of Vaccination, &c.—*continued.*

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average Population per Square Mile.	Average number of Vaccinators employed throughout the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccinations.				Re-vaccination.		Percentage of Successful Cases.		Persons successfully Vaccinated per 1,000 of Population.	Average annual number of Persons successfully Vaccinated during previous five years.		Average annual number of Deaths from Small-pox during previous five years.	
									Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.		No.	Ratio per 1,000.	No.	Ratio per 1,000.
										Under 1 year.	Over 1 and under 6 years.	Total of all Ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	THE NORTHERN DECCAN REGISTRATION DISTRICT —*continued.*				Male.	Female.	Total.														
	Sholapur Collectorate—																				
20	Sholápur Town	53,403	2225·12	1	P 1,724 / R 242	1,348 / 127	3,072 / 369	3,441	3,072	538	501	2,511	369	204	81·74	55·28	56·84	1,650	30·90	44	0·82
21	Bársi do.	18,560	640·00	1	P 669 / R 23	703 / 12	1,372 / 35	1,407	1,382	456	572	1,214	35	33	88·47	94·29	67·18	1,140	61·42	12	8·65
22	Pandharpur Town	16,275	3255·00	1	P 1,022 / R 140	1,041 / 237	2,063 / 377	2,440	2,063	504	579	1,945	377	275	94·28	72·94	136·41	1,347	82·76	9	0·55
23	In the 7 Rural Circles, Local Fund	629,796	141·81	9	P 4,574 / R 563	4,645 / 405	9,219 / 968	1,132	9,262	3,659	4,158	8,796	968	691	95·41	71·38	15·06	12,661	20·10	188	0·30
	Total	718,034	159·60	12	P 7,989 / R 968	7,737 / 781	15,726 / 1,749	1,456	15,779	5,157	5,810	14,468	1,749	1,203	91·99	68·78	21·82	16,798	23·39	253	0·35
	Native States—																				
24	Dang Territory	39,111	10·19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25	Akalkot	81,068	162·79	1	P 795 / R 79	723 / 49	1,518 / 128	1,646	1,528	338	830	1,402	128	100	92·36	78·12	18·53	1,686	20·80	..	..
26	Modnimb	13,773	154·75	..	P 77 / R 4	75 / 6	152 / 10	..	153	71	60	145	10	9	95·39	90·00	11·18	195	14·23	..	..
	TOTALS BY ESTABLISHMENTS IN NORTHERN DECCAN REGISTRATION DISTRICT—																				
	Cantonment	28,450	7112·50	1	P 539 / R 384	400 / 89	939 / 473	1,412	939	699	237	939	473	278	100·00	58·79	42·78	901	31·67	19	0·67
	Municipal	269,098	3139·51	9	P 6,471 / R 1,260	5,855 / 517	12,326 / 1,777	1,567	12,337	5,141	3,562	11,270	1,777	923	91·43	51·94	45·16	10,012	37·08	261	0·97
	Local Fund	3,863,787	113·32	66	P 42,163 / R 2,048	41,711 / 921	83,874 / 2,969	1,316	84,111	47,028	32,323	81,774	2,971	2,055	97·49	69·22	21·70	90,842	23·51	3,373	0·87
	Native State	133,952	30·26	1	P 872 / R 83	798 / 55	1,670 / 138	1,808	1,681	499	890	1,547	138	109	92·63	78·98	12·36	1,881	14·04	..	..
	Grand Total	4,296,187	111·26	77	P 50,045 / R 3,775	48,764 / 1,582	98,809 / 5,357	1,353	99,068	53,277	37,012	95,530	5,359	3,365	96·68	62·81	23·02	103,636	24·12	3,653	0·85
	THE SOUTHERN DECCAN REGISTRATION DISTRICT.																				
	Sa'ta'ra Collectorate—																				
27	Sátára Town	24,484	8161·33	1	P 405 / R 282	411 / 1	816 / 283	1,099	816	587	229	816	283	283	100·00	100·00	44·89	1,152	47·05	8	0·33
28	Karád do.	11,410	7606·66	..	....	..	Vide	Statement No. III.	..	..	..	..	..	..	..	..	..	..	..	3	0·26
29	Wái do.	11,062	5531·00	..	....	..		Ditto.		..	..	..	..	..	..	..	..	..	..	10	0·90
30	In the 12 Rural Circles, Local Fund	1,014,046	211·32	13	P 12,128 / R 302	11,608 / 11	23,736 / 313	1,850	23,785	14,905	8,118	23,235	314	270	97·89	86·26	23·18	28,349	27·96	233	0·23
	Total	1,061,002	220·86	14	P 12,533 / R 584	12,019 / 12	24,552 / 596	1,796	24,601	15,492	8,347	24,051	597	553	97·96	92·78	23·19	29,501	27·80	254	0·24

	BELGAUM COLLECTORATE—																												
31	Gokák Town	12,612	..	..	....		Vide	Statement	No. III.	..	..	..	..	..	..	..	..	..	234	18·55	9	0·71
32	Athni do.	11,588	..	..	....		Ditto.			..	..	..	..	..	..	..	..	..	..	..	11	0·95
33	Belgaum do.	26,947	..	1	P. 433	381	814			814	328	467	801	55	45	98·40	81·81	31·39	959	35·77	57	2·12
					R. 54	1	55		1,021													
34	Do. Cantonment	5,330	..		P. 79	66	145			145	75	67	142	7	7	97·93	100·00	27·95	..	..	2	0·37
					R. 5	2	7															
35	In the 7 Rural Circles, Local Fund	882,273	..	11	P. 7,120	6,917	14,037		1,297	14,037	6,299	7,135	13,788	231	193	98·23	83·55	15·85	16,273	18·44	533	0·60
					R. 194	37	231															
	Total ..	938,750	204·43	12	P. 7,632	7,364	14,996		1,274	14,996	6,702	7,669	14,731	293	245	93·23	83·62	15·95	17,466	18·61	612	0·65
					R. 253	40	293															
	DHA'RWA'R COLLECTORATE—																					
36	Dhárwár Town	27,136	..	1	P. 512	418	930		984	931	508	318	897	54	38	96·45	70·37	34·46	1,173	43·23	31	1·14
					R. 51	3	54															
37	Hubli do.	37,961	..	1	P. 395	388	783		861	787	417	308	735	78	54	93·37	69·23	20·78	1,184	31·19	24	0·63
					R. 76	2	78															
38	Gadag-Bettigeri Town	19,036	..	1	398	367	765		765	768	494	199	696	..	..	90·98	..	36·56	895	47·02	7	3·36
39	Ranebennur do. Local Fund	11,623	..	..	124	94	218		..	219	48	140	206	..	..	94·49	..	17·72	..	..	28	2·41
40	In the 14 Rural Circles, do.	892,282	..	11	P. 5,524	4,959	10,483		971	10,530	4,068	5,154	9,718	201	103	92·70	51·28	11·01	15,121	16·95	649	0·73
					R. 185	16	201															
	Total ..	988,037	216·43	14	P. 6,963	6,226	13,179		965	13,235	5,535	6,119	12,252	333	195	92·91	58·56	12·60	18,373	18·60	739	0·75
					R. 312	21	333															
	KALA'DGI COLLECTORATE—																					
41	Bagalkot Town	14,009	..	1	P. 271	242	513		524	513	330	140	479	11	8	93·37	72·72	34·78	826	58·09	..	..
					R. 11		11															
42	Ilkal do.	10,107	..	1	26	30	60		60	60	19	24	44	..	..	73·33	..	4·35	369	36·51	..	..
43	Kaládgi do. Local Fund	6,592	..	..	P. 31	21	52		..	52	15	26	41	14	12	78·85	85·71	8·04	94	14·26	4	0·61
					R. 14	..	14															
44	Do. Cantonment do.				....	..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..
45	In the 8 Rural Circles, do.	785,336	..	8	P. 4,798	4,361	9,159		1,176	9,168	3,602	4,647	8,654	252	223	94·49	88·49	11·30	15,328	19·59	270	0·34
					R. 196	56	252															
	Total ..	816,037	143·29	10	P. 5,130	4,654	9,784		1,006	9,793	3,966	4,837	9,218	277	243	94·21	87·73	11·59	16,617	20·36	274	0·33
					R. 221	66	277															
46	KOLHA'PUR STATES	802,691	288·95	11	P. 7,283	6,877	14,160		1,296	14,181	7,621	5,713	13,526	94	56	95·52	59·69	16·92	15,028	18·73	..	..
					R. 89	5	94															
	SOUTHERN MA'RA'THA JA'GHI'RS—																					
47	Sangli	223,663	249·62	4	P. 1,193	1,138	2,331		594	2,335	1,155	997	2,195	47	24	94·17	51·06	9·92	3,178	14·21	..	..
					R. 30	17	47															
48	Jámkhandi	102,346	208·02	2	P. 976	1,013	1,989		1,005	1,998	834	885	1,857	22	15	93·36	68·18	18·29	2,092	20·44	..	..
					R. 20	2	22															
49	Miraj (Senior)	68,428	272·62	2	P. 579	487	1,066		555	1,079	467	351	839	45	20	80·58	44·44	12·85	1,185	17·32	..	..
					R. 43	2	45															
50	Do. (Junior)	35,601	171·99	1	265	177	442		442	442	238	204	442	..	..	100·00	..	12·04	434	12·11	..	..
51	Kurundvád (elder)	39,420	216·59	1	123	132	255		255	255	76	161	243	..	..	95·29	..	61·64	872	22·30	..	..
52	Do. (younger)	30,251	265·38	1	235	227	462		462	462	163	275	440	..	..	95·24	..	14·54	463	15·30	..	..
53	Mudhol	58,921	162·76	1	P. 412	412	824		826	824	815	431	813	2	2	98·66	100·00	13·83	1,145	19·43	..	..
					R. 2	..	2															
54	Rámdurg	88,031	271·65	1	P. 319	301	620		626	622	120	451	604	6	4	97·42	66·66	19·73	545	14·33	..	..
					R. 3	3	6															
	Total ..	596,661	225·58	13	P. 4,102	3,887	7,989		624	8,017	3,368	3,805	7,453	122	65	93·17	53·28	13·60	9,921	16·63	..	..
					R. 98	24	122															
	SA'TA'RA JA'GHI'RS—																					
55	Pant Pratinidhi	68,335	320·82	1	184	186	370		370	371	172	100	275	..	..	74·32	..	4·02	949	13·89	..	..
56	Pant Sacheo	136,075	91·26	2	P. 1,068	1,093	2,161		1,094	2,161	1,158	955	2,148	27	27	99·70	100·00	10·13	3,146	83·12	..	..
					R. 21	6	27															
57	Phaltan	59,124	148·93	1	343	340	683		683	691	241	356	601	..	..	87·99	..	10·17	1,024	17·32	..	..
58	Jath	70,665	91·77	1	P. 346	393	739		740	744	421	201	627	1	..	84·84	..	38·78	1,144	16·19	..	..
					R. 1	..	1															
	Total ..	334,199	116·40	5	P. 1,941	2,012	3,953		796	3,967	1,992	1,612	3,651	28	27	92·36	96·43	11·01	6,263	18·74	..	..
					R. 22	6	28															

Statement No. I. showing particulars of Vaccination, &c.—*continued*.

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average Population per Square Mile.	Average number of Vaccinators employed throughout the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccinations.				Re-Vaccination.		Percentage of Successful Cases.		Persons successfully Vaccinated per 1,000 of Population.	Average annual number of Persons successfully Vaccinated during previous five years.		Average annual number of Deaths from Small-pox during previous five years.	
									Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.		No.	Ratio per 1,000.	No.	Ratio per 1,000.
										Under 1 year.	Over 1 and under 6 years.	Total of all Ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	THE SOUTHERN DECCAN REGISTRATION DISTRICT—*continued*.				Males.	Females.	Total.														
	Under the Dha'rwa'r Agency—																				
59	Savanúr State..	17,288	247·04	1	P 325 / R 18	299 / 1	624 / 19	643	632	174	308	542	19	15	86·86	78·95	32·22	492	28·46	..	..
	TOTALS BY ESTABLISHMENTS IN SOUTHERN DECCAN REGISTRATION DISTRICT—																				
	Municipal	171,594	57198·00	7	P 2,523 / R 479	2,303 / 9	4,826 / 488	759	4,834	2,758	1,752	4,610	488	435	95·52	89·14	29·41	6,886	40·13	129	0·75
	Local Fund	3,632,232	184·81	43	P 29,725 / R 891	27,966 / 120	57,685 / 1,011	1,365	57,791	28,937	25,220	55,642	1,012	801	96·46	79·23	15·54	75,071	20·67	1 750	0·48
	Native State	1,750,839	209·33	30	P 13,651 / R 227	13,075 / 36	26,726 / 263	900	26,797	13,155	11,438	25,172	263	163	94·18	61·98	14·47	31,704	18·11	..	..
	Grand Total ..	5,554,665	198·23	80	P 45,899 / R 1,597	43,338 / 165	89,237 / 1,762	1,137	89,422	44,850	38,410	85,424	1,763	1,399	95·73	79·40	15·63	113,661	20·46	1,879	0·34
	THE KONKAN REGISTRATION DISTRICT.																				
	Ka'nara Collectorate—																				
60	Kárwár Town Local Fund	13,263	..	..	P 59 / R ..	2	112 / 2	..	112	25	79	107	2	1	95·18	50·00	8·14	59	4·45	1	0·01
61	Kumta do. do.	10,932	..	..	..	..	Vide	Statement	No. III.	..	..	..	..	..	..			..	..	4	0·37
62	In the 11 Rural Circles, Local Fund	374,211	..	11	P 5,114 / R 522	4,490 / 284	9,604 / 806	946	9,623	983	5,110	8,788	806	558	91·54	69·23	24·98	11,567	30·91	176	0·47
	Total ..	398,406	94·07	11	P 5,173 / R 522	4,543 / 286	9,716 / 808	957	9,735	1,008	5,189	8,895	808	559	91·55	69·19	23·73	11,626	29·18	181	0·45
	Ratna'giri Collectorate—																				
63	Vengurla Town Local Fund	14,996	..	..	P 165 / R 4	146 / 2	311 / 6	..	311	84	213	311	6	5	100·00	83·33	21·07	38	2·53	2	0·14
64	Ratnágiri do. do.	10,614	..	..	P 74 / R 79	89 / 6	163 / 85	..	163	29	98	136	85	30	83·44	35·29	15·64	16	1·51	17	1·60
65	In the 8 Rural Circles, Local Fund	993,526	..	13	P 11,304 / R 1,621	11,074 / 1,577	22,378 / 3,198	1,967	22,447	10,399	10,947	22,002	3,198	2,388	98·32	74·67	24·55	27,774	27·95	545	0·55
	Total ..	1,019,136	268·97	13	P 11,543 / R 1,704	11,309 / 1,585	22,852 / 3,289	2,011	22,921	10,512	11,258	22,449	3,289	2,423	98·24	73·67	24·45	27,828	27·30	564	0·55
	Kola'ba Collectorate—																				
66	Alibág Town Local Fund	5,473	..	..	40	46	86	..	86	38	45	84	..	..	97·67	..	15·31	4	0·73	10	1·83
67	Mahád do. do.	6,631	6631·00	..	..	..	Vide	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	5	0·75
68	In the 6 Rural Circles, Local Fund	338,301	228·43	5	P 4,001 / R 25	3,920 / 11	7,921 / 36	1,591	7,959	4,990	2,635	7,677	36	33	96·92	91·67	22·79	8,244	24·37	188	0·56
	Total ..	350,405	236·44	5	P 4,041 / R 25	3,966 / 11	8,007 / 36	1,607	8,045	5,028	2,680	7,761	36	33	96·93	91·67	22·24	8,248	23·54	203	0·58

	THA'NA COLLECTORATE—																						
69	Kalyán Town Local Fund	12,804	4268·00	..		38	39	77	..	77	35	40	75	..	..	97·49	..	58·57	..	..	11	0·86
70	Thána do. do.	14,299	3574·75	1	P 645 R 358	267 31	912 389	1,301	912	295	166	912	389	388	100·00	99·74	90·91	837	58·53	10	0·70
71	Panvel do. do.	10,836	1806·00	1		302	287	589		589	418	164	587	..	..	99·66	..	54·17	500	46·14	6	0·55
72	Uran do. do.	8,690	..			234	231	465	1,054	465	293	164	464	..	..	99·78	..	53·39	412	47·41	..	..
73	In the 11 Rural Circles, Local Fund	800,795	198·26	13	P 9,628 R 26	9,088 9	18,716 35	1,442	18,729	8,310	9,233	18,133	35	13	96·88	37·24	22·53	15,957	19·93	486	0·61
	Total ..	847,424	209·13	15	P 10,847 R 384	9,912 40	20,759 424	1,412	20,772	9,351	9,767	20,171	424	401	97·17	94·57	24·27	17,706	20·89	513	0·61
	NATIVE STATES—																						
74	Sávantvádi	190,814	212·02	1	P 2,050 R 601	1,812 144	3,862 745	4,607	3,953	972	2,355	3,636	745	270	94·15	36·24	20·47	6,012	31·51	..	..
75	Janjira	71,996	476·79	1	P 1,320 R 5	1,240 3	2,560 8	2,568	2,562	1,209	1,272	2,520	8	8	98·44	100·00	35·11	2,137	29·68	..	..
76	Jawhar	37,406	70·05	1	P 760 R 24	680 8	1,440 32	1,472	1,440	575	739	1,415	32	32	98·26	100·00	36·81	1,279	32·30	..	..
	TOTALS BY ESTABLISHMENTS IN KONKAN REGISTRATION DISTRICT—																						
	Municipal	33,825	3382·50	2	P 1,181 R 358	785 31	1,966 389	1,177	1,966	1,006	494	1,963	389	388	99·85	99·74	69·50	1,749	51·41	16	0·47
	Local Fund	2,581,546	190·55	42	P 30,423 R 2,277	28,945 1,891	59,368 4,168	1,513	59,507	24,893	28,400	57,313	4,168	3,028	96·55	72·65	23·37	63,646	24·65	1,445	0·56
	Native State	300,216	189·41	3	P 4,130 R 630	3,732 155	7,862 785	2,882	7,955	2,756	4,366	7,571	785	310	96·30	39·49	26·25	9,428	31·40	..	..
	Grand Total ..	2,915,587	192·54	47	P 35,734 R 3,265	33,462 2,077	69,196 5,342	1,586	69,428	28,655	33,260	66,847	5,342	3,726	96·61	69·75	24·20	74,823	25·06	1,461	0·59
	THE PRESIDENCY CIRCLE.																						
77	Bombay City (Municipal)	644,405	29291·13	8	P 6,069 R 2,325	6,069 306	12,108 2,631	1,842	12,510	7,825	2,722	10,890	2,633	1,611	89·94	61·23	19·40	16,256	25·23	607	0·94
	THE EASTERN GUJARA'T REGISTRATION DISTRICT.																						
	SURAT COLLECTORATE—																						
78	Surat Town	107,149	35716·33	1	P 945 R 140	836 10	1,781 150	1,931	1,781	1,160	547	1,726	150	22	96·91	14·67	16·13	1,854	17·21	131	1·22
79	Bulsár do.	11,315	..	..	....	Vide	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	..	10	0·88
80	In the 8 Rural Circles, Local Fund	488,623	306·28	8	P 6,536 R 79	6,330 16	12,866 95	1,625	12,896	8,077	4,286	12,573	95	68	97·72	71·58	25·87	12,914	26·43	503	0·10
	Total ..	607,087	382·36	9	P 7,481 R 219	7,166 26	14,647 245	1,655	14,677	9,237	4,833	14,299	245	90	97·56	36·73	23·70	14,768	24·32	644	1·06
	BROACH COLLECTORATE—																						
81	Broach City	36,932	..	1	P 327 R 2	375 1	702 3	705	702	406	216	624	3	..	88·89	..	16·89	729	29·74	61	1·65
82	Jambusar Town	14,924	..	..	....	Vide	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	..	5	0·33
83	In the 6 Rural Circles, Local Fund	298,466	..	5	P 2,926 R 113	2,621 11	5,547 124	1,134	5,588	3,697	1,636	5,354	124	47	96·62	37·90	18·09	7,204	24·14	187	0·62
	Total ..	350,322	257·97	6	P 3,253 R 115	2,996 12	6,249 127	1,063	6,290	4,103	1,852	5,978	127	47	95·66	37·00	17·20	7,983	22·79	253	0·72

Statement No. I. showing particulars of Vaccination, &c.—*continued.*

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average Population per Square Mile.	Average number of Vaccinators employed throughout the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccinations.				Re-vaccination.		Percentage of Successful Cases.		Persons successfully Vaccinated per 1,000 of Population.	Average annual number of Persons successfully Vaccinated during previous five years.		Average annual number of Deaths from Small-pox during previous five years.	
									Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.		No.	Ratio per 1,000.	No.	Ratio per 1,000.
										Under 1 year.	Over 1 and under 6 years.	Total of all Ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	THE EASTERN GUJARA'T REGISTRATION DISTRICT—*continued.*																				
	KAIRA COLLECTORATE—																				
84	Nadiad Town	24,551	2455·10	1 P	491	412	903	954	905	727	140	876	51	11	97·01	21·57	36·13	1,052	42·85	9	0·36
				R	51	..	51														
85	Kaira do. Local Fund	12,681	1585·12	.. P	171	171	342	..	347	220	72	293	3	1	85·67	33·33	23·18	193	15·22	1	0·07
				R	2	1	3														
86	Borsad do.	12,214	1221·40	.. P	110	105	215	..	215	164	48	212	1	..	98·60	..	17·36	..	..	11	0·90
				R	1	..	1														
87	Kapadvanj Town	13,982	1997·42	..	..	Vide Statement No. III.			..	..	..	..	..	..	..	..	..	..	..	2	0·14
88	In the 7 Rural Circles, Local Fund	719,305	471·36	8 P	8,948	7,417	16,365	2,051	16,405	12,706	3,056	15,824	45	25	96·69	57·78	22·03	18,580	25·83	370	0·51
				R	38	7	45														
	Total	782,733	501·43	9 P	9,720	8,105	17,825	1,992	17,872	13,817	3,316	17,205	100	37	96·52	37·00	22·03	19,825	25·33	393	0·50
				R	92	8	100														
	PANCH MAHA'LS—																				
89	Godhra Town	10,641	..	..	Vide Statement No. III.			..	..	..	..	..	..	..	..	..	..	..	..	10	0·94
90	Dohad do. Local Fund	11,472	..	.. P	154	139	293	..	293	173	110	288	238	155	98·29	65·13	38·62	373	32·51	12	1·02
				R	238	..	238														
91	In the 5 Rural Circles, Local Fund	218,630	..	5 P	2,435	2,102	4,537	948	4,563	2,162	2,032	4,420	204	138	97·42	67·65	20·85	8,655	39·59	42	0·19
				R	150	54	204														
	Total	240,743	139·88	5 P	2,589	2,241	4,830	1,054	4,856	2,335	2,142	4,708	442	293	97·47	66·29	20·77	9,028	37·50	64	0·26
				R	388	54	442														
	AHMEDABAD COLLECTORATE—																				
92	Gogha Town, Local Fund	9,571	..	.. P	141	150	291	..	291	184	93	278	21	13	95·53	61·90	30·43	59	6·16	3	0·31
				R	13	8	21														
93	Viramgam Town	19,661	..	1 P	400	374	774	813	774	664	81	747	39	22	96·51	56·41	39·11	766	38·96	14	0·71
				R	37	2	39														
94	Dholka do.	20,854	..	1 P	291	290	581	582	596	472	36	510	1	1	87·78	100·00	24·50	656	31·45	6	0·29
				R	1	..	1														
95	Dhanduka do. Municipal	9,782	..	.. P	45	66	111	..	112	98	10	108	15	9	97·30	60·00	26·89	964	98·55	..	..
				R	15	..	15														
	Local Fund			.. P	75	67	142	..	146	117	19	139	13	7	97·88	53·85					
				R	10	3	13														
96	Ahmedabad City	116,873	58436·50	2 P	2,150	1,962	4,112	2,064	4,117	3,186	840	4,037	17	12	98·18	70·59	34·64	4,683	40·07	6	0·05
				R	10	7	17														
97	Ahmedabad Cantonment	1,883	627·66	..	59	37	96	..	96	90	6	96	..	..	100·00	..	50·98	..	..	1	0·53
98	In the 7 Rural Circles, Municipal	651,013	169·57	.. P	136	101	237	..	239	209	21	230	30	9	97·05	30·00	0·37	16,001	24·58	358	0·55
				R	29	1	30														
	Local Fund			9 P	6,143	5,741	11,884	1,408	11,935	8,651	2,794	11,499	792	473	96·76	59·72	18·39				
				R	606	186	792														
	Total	829,637	215·83	13 P	9,440	8,788	18,228	1,474	18,306	13,671	3,900	17,644	928	546	96·79	58·84	21·92	23,129	27·88	388	0·47
				R	721	207	928														

99	Rewa Kántha States	505,732	1504·45	11	P.	5,449	5,027	10,476	957	10,542	3,393	5,987	10,198	49	42	97·35	85·71	20·25	11,246	22·23	..	..
					R.	25	24	49														
100	Mahi Kántha States	447,056	111·76	5	P.	4,412	3,928	8,340	1,672	8,381	3,438	4,420	8,139	22	15	97·59	68·18	18·24	9,836	22·00	..	..
					R.	18	4	22														
101	Cambay	83,494	238·55	1	P.	1,139	928	2,067	2,071	2,089	1,560	421	1,993	4	2	96·42	50·00	23·88	2,508	30·04	..	..
					R.	4	..	4														
102	Surat Agency .. Dharampor	74,592	331·52	1		695	661	1,356	1,356	1,356	289	789	1,333	..	..	98·30	..	17·87	3,329	44·63	..	..
103	Bánsda	33,154	98·94	1		690	684	1,374	1,374	1,374	349	917	1,312	..	..	95·49	..	40·80	1,390	43·23	..	..
104	Sachin Local Fund	17,103	263·12	..	P.	341	315	656	..	656	362	266	634	5	4	95·14	80·00	37·30	383	24·39	..	..
					R.	5	..	5														
105	Jámbughoda Local Fund	6,837	47·81	..	P.	49	52	101	-	101	62	38	100	2	2	99·01	100·00	14·92	240	35·13	..	..
					R.	2	..	2														
	TOTALS BY ESTABLISHMENTS IN EASTERN GUJARAT REGISTRATION DISTRICT.																					
	Municipal	337,685	18760·28	7	P.	4,844	4,453	9,297	1,372	9,322	7,012	1897	8,954	306	86	96·31	28·10	26·77	10,964	32·47	228	0.67
					R.	285	21	306														
	Local Fund	2,496,777	243·07	35	P.	28,029	25,210	53,239	1,565	53,436	36,575	14,450	51,614	1,543	933	98·64	60·46	21·05	64,393	25·79	1,514	0·66
					R.	1,257	286	1,543														
	Native State	1,143,028	120·40	19	P.	2,385	11,228	23,613	1,247	23,742	9,029	12,534	22,975	75	59	97·30	78·67	20·15	30,189	26·41	..	..
					R.	47	28	75														
	Grand Total .	3,977,490	291·05	61	P.	45,258	40,891	86,149	1,444	86,500	52,616	28,881	83,543	1,924	1,078	96·97	56·93	21·27	1,05,546	26·54	1,742	0·44
					R.	1,589	335	1,924														
	THE WESTERN GUJARAT CIRCLE. KATHIA'WA'R STATES.																					
106	Limbdi	45,940	163·82	1	P.	671	505	1,176	1,189	1,181	408	672	1,099	13	3	93·45	23·08	23·99	1,912	41·62	..	..
					R.	10	3	13														
107	Jálávád Pránt .. .. .. Dhrángadra	100,000	87·26	1	P.	883	825	1,708	1,712	1,713	669	849	1,544	4	3	90·39	75·00	15·47	2,142	21·44	..	..
					R.	4	..	4														
108	In five other States	313,523	76·71	5	P.	3,682	3,460	7,142	1,493	7,164	3,818	2,834	6,735	322	225	94·30	69·88	21·88	10,677	34·05	..	..
					R.	170	152	322														
	Total ..	459,463	83·33	7	P.	5,236	4,790	10,026	1,481	10,058	4,895	4,355	9,378	339	231	93·54	68·14	20·91	14,731	32·06	..	..
					R.	184	155	339														
109	Rájkot	33,086	136·69	1	P.	664	613	1,277	1,395	1,277	716	477	1,211	13	13	94·83	100	36·99	2,143	64·77	..	..
					R.	10	3	13														
110	Do. Cantonment . ..	3,684			P.	52	44	96		96	62	32	95	9	6	98·95	66·67	27·42	1,108	300·76	..	..
					R.	8	1	9														
111	Gondal	137,217	196·21	2	P.	1,230	1,114	2,344	1,331	2,392	915	1,076	2,036	318	163	86·86	51·26	16·03	3,522	25·67	..	..
	Hálár Pránt				R.	163	155	318														
112	Morvi	90,616	85·33	1	P.	792	720	1,512	1,551	1,522	857	583	1,456	39	25	96·30	64·10	16·34	2,549	28·13	..	..
					R.	20	19	39														
113	Navanágar	290,847	85·71	3	P.	2,780	2,666	5,446	1,907	5,446	2,432	2,302	4,820	274	109	88·51	60·95	16·92	6,365	21·78	..	..
					R.	194	80	274														
114	In three other States.. ..	91,754	127·95	3	P.	2,748	2,670	5,418	1,878	5,470	1,443	3,186	4,711	216	93	86·95	43·06	52·36	4,424	48·22	..	..
					R	111	105	216														
	Total ..	647,204	105·39	10	P.	8,266	7,827	16,093	2,696	16,203	6,425	7,656	14,329	869	409	89·04	47·06	22·77	20,111	31·07	..	..
					R	506	363	869														
115	Junágadh	380,921	100·24	4	P.	1,903	1,791	3,694	970	3,701	1,601	1,684	3,369	187	161	91·20	86·10	9·27	7,537	19·79	..	..
					R.	93	94	187														
116	Jetpur	95,620	165·37	1	P.	727	711	1,438	1,469	1,438	593	636	1,244	31	25	86·51	80·64	13·27	2,077	21·72	..	..
					R.	14	17	31														
117	Sorath Pránt .. .. .. Porbandar	72,077	134·69	1	P.	743	674	1,417	1,509	1,417	397	950	1,368	92	62	96·54	67·39	19·98	1,908	26·47	..	..
					R.	49	43	92														
118	Bántva	40,314	193·44	1	P.	806	844	1,650	1,945	1,650	640	768	1,520	295	205	92·12	69·49	42·79	2,475	61·39	..	..
					R.	108	187	295														
119	In four other States	45,377	204·41	4	P.	2,416	2,130	4,546	1,136	4,552	1,806	1,967	3,837	278	161	84·62	57·91	86·11	5,148	113·45	..	..
					R.	140	138	278														
	Total ..	634,309	118·70	11	P.	6,595	6,150	12,745	1,239	12,758	5,037	6,005	11,338	883	614	88·96	69·54	18·84	19,145	30·18	..	..
					R.	404	479	883														
120	Bhavnagar	399,688	143·57	6	P.	5,071	4,726	9,797	1,807	9,817	4,070	4,821	9,103	1,044	602	92·92	57·72	24·28	12,636	31·61	..	..
					R.	573	470	1,043														
121	Gohelvad Pránt .. .. .. Pálitána	171,965	308·71	1	P.	741	664	1,405	1,456	1,405	426	737	1,240	51	29	88·25	56·86	15·96	1,742	23·19	..	..
					R.	32	19	51														
122	Wala			1	P.	699	679	1,378	1,579	1,378	965	369	1,336	201	140	96·95	69·65		2,246		..	..
					R.	109	92	201														
	Total ..	571,653	171·10	8	P.	6,511	6,069	12,580	1,734	12,600	5,461	5,927	11,679	1,296	771	92·84	59·54	21·78	16,624	29·08	..	..
					R.	714	581	1,295														
	Káthiáwar States, Total ..	2,312,629	113·69	36	P.	26,608	24,836	51,444	1,523	51,619	21,818	23,943	46,724	3,387	2,025	90·82	53·81	21·08	70,611	30·53	..	..
					R.	1,808	1,578	3,386														

Statement No. I. showing particulars of Vaccination, &c.—*continued.*

Number.	Circles and Districts.	Population of Districts according to Census.	Average Population per Square Mile.	Average number of Vaccinators employed throughout the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccinations.				Re-vaccination.		Percentage of Successful Cases.		Persons successfully Vaccinated per 1,000 of Population.	Average annual number of Persons successfully Vaccinated during previous five years.		Average annual number of Deaths from Small-pox during previous five years.	
									Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.		Number.	Ratio per 1,000.	Number.	Ratio per 1,000.
										Under 1 year.	Over 1 and under 6 years.	Total of all Ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	THE WESTERN GUJARA'T CIRCLE—*continued.*				Males.	Females.	Total.														
	PALA'NPUR STATES—																				
123	Deesa	49,821	..	1	843	747	1,590	2,001	1,590	937	560	1,511	..	..	95·03	..	30·33	2,364	39·96	..	..
124	Do. Cantonment	9,335	..		221	190	411		411	307	95	403	..	..	98·05	..	43·17				
125	Pálanpur	156,816	65·77	2	1,737	1,529	3,266	1,633	3,266	1,601	1,397	3,005	..	..	92·01	..	19·16	4,305	27·45	..	..
126	Rádhanpur	91,579	98·57	1	784	855	1,639	1,639	1,639	575	641	1,219	..	..	74·38	..	13·31	1,466	16·01	..	..
127	In three other States	195,035	71·23	3	P. 3,319 R. 320	3,148 254	6,467 574	2,347	6,467	3,194	2,911	6,201	574	404	95·89	70·38	33·86	5,927	30·39	..	..
	Total	502,586	83·19	7	P. 6,904 R. 320	6,469 254	13,373 574	1,992	13,373	6,614	5,604	12,339	574	404	92·27	70·38	25·35	14,062	27·98	..	..
	TOTALS BY ESTABLISHMENTS IN WESTERN GUJARA'T CIRCLE.																				
	Government	95,926	356·60	2	P. 1,780 R. 18	1,594 4	3,374 22	1,698	3,374	2,022	1,164	3,220	22	19	95·47	86·36	33·56	4,904	51·12	..	..
	Native State	2,719,289	104·14	41	P. 31,732 R. 2,110	29,711 1,828	61,443 3,938	1,595	61,618	26,410	28,383	55,843	3,939	2,410	90·89	61·20	21·42	79,769	29·33	..	..
	Grand Total	2,815,215	106·72	43	P. 33,512 R. 2,128	31,305 1,832	64,817 3,960	1,599	64,992	28,432	29,547	59,063	3,961	2,429	91·12	61·34	21·84	84,673	30·08	..	..
	THE SIND REGISTRATION DISTRICT.																				
	KURRACHEE COLLECTORATE—																				
128	Kurrachee Town	53,526	2676·30	2	P. 1,484 R. 1,079	1,091 38	2,575 1,117	1,846	2,631	1,161	1,265	2,507	1,117	657	97·36	58·82	59·11	3,137	58·61	174	3·25
129	In the 13 Rural Circles, Local Fund	369,969	26·29	9	P. 6,200 R. 3,169	5,495 3,819	11,695 6,988	2,076	11,709	7,001	4,087	11,427	6,988	5,842	97·71	83·60	46·67	19,252	52·04	805	2·18
	Total	423,495	30·05	11	P. 7,684 R. 4,248	6,586 3,857	14,270 8,105	2,034	14,340	8,102	5,352	13,934	8,105	6,499	95·76	80·19	48·25	22,389	52·87	979	2·31
	HYDERABAD COLLECTORATE—																				
130	Hyderabad Town	35,272	..	1	P. 526 R. 874	466 1	992 875	1,867	992	657	317	987	875	808	99·50	92·34	50·89	2,025	57·41	238	6·75
131	In the 13 Rural Circles, Local Fund	686,675	..	12	P. 10,272 R. 3,376	7,904 1,570	18,176 4,946	1,928	18,248	9,441	7,514	17,493	4,947	3,419	96·24	69·13	30·45	32,297	47·03	999	1·45
	Total	721,947	79·75	13	P. 10,798 R. 4,250	8,370 1,571	19,168 5,821	1,923	19,240	10,098	7,831	18,480	5,822	4,227	96·41	72·62	31·45	34,322	47·54	1,237	1·71
	THAR AND PARKA'R—																				
132	Umarkot Town	3,999	..	..	....	Vide State	ment No.	III.	..	..	..	..	..	..	..	..	..	..	..	2	0·50
133	In the 7 Rural Circles, Local Funds	176,672	..	6	P. 3,745 R. 1,841	2,952 3,386	6,697 5,227	1,987	6,704	2,621	3,605	6,443	5,289	4,229	96·21	80·91	60·41	11,873	67·20	11	0·06
	Total	180,761	14·20	6	P. 3,745 R. 1,841	2,952 3,386	6,697 5,227	1,987	6,704	2,621	3,605	6,443	5,289	4,229	96·21	80·91	59·04	11,873	65·68	13	0·07
	SHIKA'RPUR COLLECTORATE—																				
134	Shikárpur Town	38,107	7621·40	1	P. 672 R. 1,159	672 20	1,344 1,179	2,523	1,359	1,159	48	1,208	1,230	758	89·88	64·29	51·59	2,027	53·19	35	0·92
135	Sukkur do.	13,318	4,439·33	2	P. 923 R. 667	561 551	1,484 1,218	1,351	1,484	1,092	370	1,468	1,218	1,129	98·92	92·36	195·00	1,852	139·06	1	0·08
136	Lárkhána do.	10,643	..	1	P. 151 R. 61	122 1	273 62	335	277	220	21	243	62	39	89·01	62·90	26·50	..	..	9	0·85
137	In the 17 Rural Circles, Local Fund	714,159	81·11	13	P. 14,552 R. 3,295	12,166 7,076	26,718 10,371	2,853	26,791	14,169	9,822	25,525	10,383	8,024	95·93	77·37	46·98	35,855	50·21	36	0·05
	Total	776,227	88·08	17	P. 16,298 R. 5,182	13,521 7,648	29,819 12,830	2,509	29,911	16,640	10,261	28,444	12,893	9,950	95·39	77·55	49·46	39,734	51·19	81	0·10

	UPPER SIND FRONTIER—																					
138	Jacobabad Town and Cantonment	5,205	..	1	P. 147 R. 300	104 56	251 356	607	251	159	41	207	356	221	82·47	62·08	82·23	..	..	1	0·19
139	In the 3 Rural Circles, Local Fund	84,780	..	3	P. 2,977 R. 1,569	2,442 2,152	5,419 3,748	3,055	5,489	2,590	2,043	4,893	3,828	2,667	90·29	71·16	89·17	5,352	63·13	5	0·06
	Total	89,985	47·03	4	P. 3,124 R. 1,896	2,546 2,203	5,670 4,104	3,662	5,740	2,749	2,089	5,100	4,184	2,888	89·95	70·37	88·77	5,352	59·14	6	0·07
	NATIVE STATE—																					
140	Kairpur State	130,350	48·14	2	P. 1,244 R. 16	1,059 7	2,303 23	1,163	2,303	1,146	1,005	2,216	23	13	96·22	56·52	17·10	4,777	36·65	..	..
	TOTALS BY ESTABLISHMENS IN SIND REGISTRATION DISTRICT—																					
	Municipal	156,071	5573·96	8	P. 3,003 R. 4,140	3,016 667	6,919 4,807	1,466	6,994	4,388	2,062	6,620	4,858	3,612	95·68	75·14	65·56	9,294	59·55	458	2·93
	Local Fund	2,036,344	43·73	43	P. 37,746 R. 13,377	30,959 18,003	68,705 31,380	2,325	68,941	35,822	27,076	65,781	31,435	24,181	95·74	77·30	44·18	104,376	51·26	1,858	0·91
	Native State	130,350	48·14	2	P. 1,244 R. 16	1,059 7	2,303 23	1,163	2,303	1,146	1,005	2,216	23	13	96·22	56·52	17·10	4,777	36·64	..	..
	Grand Total	2,322,765	47·11	53	P. 42,893 R. 17,433	35,034 18,677	77,927 36,110	2,152	78,238	41,356	30,143	74,617	36,316	27,806	95·75	77·00	44·10	118,447	50·99	2,316	1·00
	THE BARODA CIRCLE.																					
141	Baroda States	2,000,225	185·77	31	P. 25,907 R. 96	23,108 70	49,105 166	1,590	49,370	34,674	12,185	47,168	166	127	96·06	76·51	23·64	43,168	21·58	..	..
	THE CUTCH CIRCLE.																					
142	Catch States	487,305	74·97	15	P. 8,271 R. 687	7,203 620	15,474 1,257	1,115	15,474	4,237	8,702	13,487	1,257	707	87·16	56·25	29·13	7,890	16·19	..	..
	ADEN.																					
143	Aden Municipality	19,289	1753·54	1	P. 426 R. 19	321 3	747 22	769	747	162	287	642	22	22	85·94	100	34·42	865	44·84	..	..
144	,, Steamer Point	..	..	..	69	60	129	..	129	14	100	120	..	..	93·02	..	93·02				
	Total	19,289	1753·54	1	P. 495 R. 19	381 3	876 22	878	876	176	393	762	22	22	86·99	100	40·64	865	44·84	..	..
	TOTAL OF THE BOMBAY PRESIDENCY. BY ESTABLISHMENTS.																					
	Government	95,926	356·69	2	P. 1,780 R. 18	1,594 4	3,374 22	1,098	3,374	2,022	1,164	3,230	22	19	95·44	86·36	33·77	4,964	51·12	..	..
	Municipal	1,632,887	9173·41	42	P. 25,436 R. 8,366	22,862 1,554	48,318 10,420	1,339	48,239	28,306	12,882	45,069	10,473	7,077	93·28	67·92	31·94	56,026	34·31	1,639	1·04
	Cantonment	28,450	7112·50	1	P. 539 R. 384	400 89	939 473	1,412	939	699	237	939	473	278	100	58·77	42·78	901	31·67	19	0·67
	Local Fund	14,610,686	117·69	229	P. 1,68,986 R. 19,750	1,51,785 21,221	3,22,871 40,971	1,589	3,23,736	1,78,255	1,27,469	3,12,124	41,129	30,998	96·67	75·66	23·48	3,96,328	27·26	9,940	0·68
	Native State	8,665,204	123·87	142	P. 98,232 R. 3,848	89,914 2,799	1,88,196 6,645	1,372	1,88,940	91,366	79,503	1,75,979	6,646	3,895	93·51	58·66	20·77	2,98,326	24·10	..	..
	In British Territory	16,261,082	131·02	273	P. 1,93,964 R. 29,091	1,77,914 22,865	3,71,878 51,956	1,552	3,73,114	2,02,205	1,40,411	3,37,896	52,077	38,353	96·24	73·95	24·37	4,55,629	27·98	11,658	0·72
	In Native State Territory	8,772,051	124·55	143	P. 1,00,179 R. 3,863	91,641 2,802	1,91,820 6,665	1,388	1,92,564	93,943	80,844	1,79,435	6,666	3,917	93·94	58·77	20·90	2,13,936	24·38	..	..
	Grand Total	25,033,133	128·67	416	P. 2,94,143 R. 32,944	2,69,555 25,667	5,63,698 58,611	1,496	5,65,678	2,96,148	2,21,255	5,37,331	58,743	42,270	95·32	72·22	23·15	6,69,565	26·71	11,658	0·47

B 833—5 *dp*

STATEMENT No. II. showing the cost of the Department

No.	Circles and Districts.	Establishment.																
		Deputy Sanitary Commissioners.	Superintendents of Circles.	Inspectors of Sanitation and Vaccination.			Assistant Superintendents of Vaccination.			Clerks.	Vaccinators.							Havaldárs and Peons.
				1st Class.	2nd Class.	3rd Class.	1st Class.	2nd Class.	3rd Class.		Government.	Municipal.	Cantonment.	Local Fund.			Native State.	
														1st Class.	2nd Class.	3rd Class.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	THE NORTHERN DECCAN REGISTRATION DISTRICT.																	
	Administrative Charges	1	..	1	1	5	..	..	..	2	..	..	..	..	..	..	..	11
1	Khándesh Collectorate	..	..	..	..	..	..	..	..	..	..	1	..	1	7	16	..	24
2	Násik do.	..	..	..	..	..	..	..	..	..	..	1	..	1	5	6	..	13
3	Ahmednagar do.	..	..	..	..	..	..	..	..	..	..	1	..	1	5	5	..	12
4	Poona do.	..	..	..	..	..	..	..	..	..	..	3	1	1	4	5	..	13
5	Sholápur do.	..	..	..	..	..	..	..	..	..	..	3	..	1	3	5	1	13
	Total	1	..	1	1	5	..	..	..	2	..	9	1	5	24	37	1	86
	THE SOUTHERN DECCAN REGISTRATION DISTRICT.																	
	Administrative Charges	1	..	1	1	3	..	..	..	2	..	..	..	..	..	..	..	9
6	Sátára Collectorate	..	..	..	..	..	..	..	..	..	..	1	..	1	5	7	5	19
7	Belgaum do.	..	..	..	..	..	..	..	..	..	..	1	..	1	3	7	..	12
8	Dhárwár do.	..	..	..	..	..	..	..	..	..	..	3	..	1	5	5	1	15
9	Kaládgi do.	..	..	..	..	..	..	..	..	..	..	2	..	1	3	4	..	10
10	Kolhápur States	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	11	12
11	Southern Marátha Jághirs	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	13	13
	Total	1	..	1	1	4	..	..	1	2	..	7	..	4	16	25	30	90
	THE KONKAN REGISTRATION DISTRICT.																	
	Administrative Charges	1	..	1	1	2	..	..	..	2	..	..	..	..	..	..	..	8
12	Kánara Collectorate	..	..	..	..	..	..	..	..	..	..	..	..	1	3	7	..	11
13	Ratnágiri do.	..	..	..	..	..	..	..	..	..	..	..	..	1	6	6	1	17
14	Kolába do.	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	1	6
15	Thána do.	..	..	..	..	..	..	..	..	..	..	2	..	1	6	6	1	16
	Total	1	..	1	1	2	..	..	..	2	..	2	..	4	17	21	3	58
	THE PRESIDENCY CIRCLE.																	
	Administrative Charges	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	Bombay	..	..	..	..	..	1	..	..	2	..	9	..	..	..	..	..	3
	Total	..	1	..	..	..	1	..	..	2	..	9	..	..	..	..	..	3
	THE EASTERN GUJARAT REGISTRATION DISTRICT.																	
	Administrative Charges	1	..	..	1	4	..	..	..	2	..	..	..	..	..	..	..	9
17	Surat Collectorate	..	..	..	..	..	..	..	..	..	..	1	..	1	3	4	2	11
18	Broach do.	..	..	..	..	..	..	..	..	..	..	1	..	1	1	3	1	7
19	Kaira do.	..	..	..	..	..	..	..	..	..	..	1	..	1	3	4	..	10
20	Panch Mahális	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	..	5
21	Ahmedabad Collectorate	..	..	..	..	..	..	..	..	..	..	4	..	1	3	5	..	13
22	Mahi Kántha Agency	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	2
23	Rewa Kántha do.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	11
	Total	1	..	..	1	4	..	..	..	2	..	7	..	5	12	18	19	63
	THE WESTERN GUJARAT CIRCLE.																	
	Administrative Charges	..	1	..	..	..	..	1	1	2	..	..	..	..	..	..	..	6
24	Káthiáwár	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	35	36
25	Palanpur	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	6	7
	Total	..	1	..	..	..	..	1	1	2	2	..	..	..	..	..	41	49
	THE SIND REGISTRATION DISTRICT.																	
	Administrative Charges	1	1	1	1	4	..	..	..	2	..	..	..	..	..	..	..	10
26	Kurrachee Collectorate	..	..	..	..	..	..	..	..	..	..	2	..	1	4	4	..	9
27	Hyderabad do.	..	..	..	..	..	..	..	..	..	..	1	..	2	5	5	..	13
28	Thar and Párkar	..	..	..	..	..	..	..	..	..	..	..	..	1	2	3	..	6
29	Shikárpur Collectorate	..	..	..	..	..	..	..	..	..	..	4	..	1	6	6	2	19
30	Upper Sind Frontier	..	..	..	..	..	..	..	..	..	..	1	..	1	1	1	..	4
	Total	1	1	1	1	4	..	..	..	2	..	8	..	6	18	19	2	61
	THE BARODA CIRCLE.																	
31	Baroda States	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	31	34
	THE CUTCH CIRCLE.																	
32	Cutch States	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	15	16
	IN THE ADEN MUNICIPALITY.																	
33	Aden	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
	Total for the Bombay Presidency	5	3	5	6	20	2	1	2	14	2	43	1	24	87	118	142	466

DEPARTMENT.

in the Bombay Presidency during the year 1879-80.

Expenditure.				Paid from					Total.	Number of all Successful Vaccinations and Re-vaccinations.	Average Cost of each Successful Case.
Pay of Establishment.	Travelling Allowance.	Contingencies.	Total Cost.	Provincial Funds.	Local Funds.	Municipal Funds.	Cantonment Funds.	Native States Funds.			
20	21	22	23	24	25	26	27	28	29	30	31
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		Rs. a. p.
14,556 7 3	2,626 4 1	1,102 1 0	18,374 12 4	18,374 12 4	....	....	..	....	18,374 12 4	..	....
5,788 10 5	....	239 7 5	6,023 1 10	....	5,783 1 10	240 0 0	..	....	6,023 1 10	28,712	0 3 4
3,637 3 0	....	112 10 0	3,749 13 0	....	3,485 13 0	264 0 0	..	....	3,749 13 0	17,686	0 3 5
3,309 12 0	....	125 11 0	3,435 7 0	....	3,183 7 0	252 0 0	..	....	3,435 7 0	18,205	0 3 0
3,868 3 9	....	303 15 8	4,172 3 5	....	2,918 15 5	1,052 13 0	200 7 0	....	4,172 3 5	17,067	0 3 11
3,736 12 0	....	195 11 5	3,932 7 5	....	2,650 10 5	894 1 0	..	381 12 0	3,932 7 5	17,825	0 3 8
34,892 0 5	2,626 4 1	2,169 8 6	39,687 13 0	18,374 12 4	18,027 15 8	2,702 14 0	200 7 0	381 12 0	39,687 13 0	98,895	0 6 5
11,399 11 1	1,775 6 3	1,150 2 4	14,325 3 8	14,325 3 8	....	....	..	....	14,325 3 8	..	....
5,067 9 2	....	292 0 11	5,359 10 3	....	3,853 8 7	292 4 0	..	1,213 13 8	5,359 10 3	28,289	0 3 0
3,257 6 2	....	181 6 0	3,438 12 2	....	3,205 6 8	233 5 6	..	....	3,438 12 2	14,976	0 3 8
3,995 15 8	....	162 10 10	4,158 10 6	....	3,207 6 2	702 1 8	..	249 2 8	4,158 10 6	13,004	0 5 1
2,649 0 0	....	159 4 9	2,808 4 9	....	2,576 13 3	231 7 6	..	....	2,808 4 9	9,461	0 4 9
3,678 12 0	.....	125 10 9	3,804 6 9	....	....	....	..	3,804 6 9	3,804 6 9	13,582	0 4 6
3,241 10 4	87 4 0	88 2 0	3,417 0 4	....	....	....	..	3,417 0 4	3,417 0 4	7,518	0 7 3
33,290 0 7	1,862 10 3	2,159 5 7	37,312 0 5	14,325 3 8	12,843 2 8	1,459 2 8	..	8,684 7 5	37,312 0 5	86,828	0 6 11
14,726 8 2	2,224 11 4	734 5 3	17,685 8 9	17,685 8 9	....	....	..	....	17,685 8 9	..	....
2,933 3 7	....	131 14 6	3,065 2 1	....	3,065 2 1	....	..	....	3,065 2 1	9,454	0 4 2
3,947 2 9	....	531 3 4	4,478 6 1	....	3,892 5 4	....	..	586 0 9	4,478 6 1	28,778	0 2 6
1,772 6 11	....	82 9 3	1,855 0 2	....	1,501 14 10	....	..	353 1 4	1,855 0 2	10,322	0 2 11
2,360 12 5	....	237 11 0	4,598 7 5	....	3,737 1 9	597 13 3	..	263 8 5	4,598 7 5	22,019	0 3 4
27,740 1 10	2,224 11 4	1,717 11 4	31,682 8 6	17,685 8 9	12,196 8 0	597 13 3	..	1,202 10 6	31,682 8 6	70,573	0 7 2
4,200 0 0	360 0 0	14 1 0	4,574 1 0	4,574 1 0	....	....	..	....	4,574 1 0	..	....
6,015 12 11	....	2,718 10 2	8,734 7 1	....	....	8,734 7 1	..	....	8,734 7 1	12,601	0 11 2
10,215 12 11	360 0 0	2,732 11 2	13,308 8 1	4,574 1 0	....	8,734 7 1	..	....	13,308 8 1	12,601	1 1 0
12,640 6 2	2,121 3 4	1,153 5 1	15,914 14 7	15,914 14 7	....	....	..	....	15,914 14 7	..	....
3,040 10 2	....	165 9 10	3,215 4 0	....	2,364 12 3	336 0 0	..	514 7 9	3,215 4 0	17,672	0 2 11
1,833 1 1	....	88 13 7	1,921 14 8	....	1,470 6 8	236 0 0	..	215 8 0	1,921 14 8	8,020	0 3 10
2,591 1 2	....	169 9 0	2,760 10 2	....	2,424 10 2	336 0 0	..	....	2,760 10 2	17,242	0 2 7
1,373 9 6	....	57 15 3	1,436 8 9	....	1,436 8 9	....	..	....	1,436 8 9	5,105	0 4 6
3,575 10 2	....	146 15 3	3,722 9 5	....	2,425 7 0	1,297 2 5	..	....	3,722 9 5	18,190	0 3 3
1,186 0 0	....	60 0 0	1,246 0 0	....	....	....	..	1,246 0 0	1,246 0 0	8,154	0 2 5
2,638 14 2	....	51 4 10	2,690 3 0	....	....	....	..	2,690 3 0	2,690 3 0	10,240	0 4 2
28,893 4 5	2,121 3 4	1,893 8 10	32,908 0 7	15,914 14 7	10,121 12 10	2,906 2 5	..	4,066 2 9	32,908 0 7	84,621	0 6 3
14,332 10 3	1,732 10 0	915 0 6	16,980 4 9	16,980 4 9	....	....	..	600 0 0	16,980 4 9	..	....
12,784 3 0	....	181 4 4	12,965 7 4	291 0 0	....	....	..	12,674 7 4	12,965 7 4	48,749	0 4 3
2,004 0 0	....	12 0 0	2,016 0 0	126 0 0	....	....	126 0 0	1,764 0 0	2,016 0 0	12,743	0 2 6
29,120 13 3	1,732 10 0	1,108 4 10	31,961 12 1	16,797 4 9	....	....	126 0 0	15,038 7 4	31,961 12 1	61,492	0 8 4
15,887 8 11	3,211 14 1	922 14 7	20,022 5 7	19,643 5 7	....	379 0 0	..	....	20,022 5 7	..	....
3,100 10 8	572 15 8	236 3 8	3,909 14 0	....	3,115 14 3	793 15 9	..	....	3,909 14 0	20,423	0 3 1
3,753 11 2	....	149 4 4	3,893 15 6	....	3,553 11 0	340 5 6	..	....	3,893 15 6	22,707	0 2 9
1,586 10 8	....	67 12 7	1,654 7 3	....	1,654 7 3	....	..	....	1,654 7 3	10,672	0 2 9
5,303 4 0	701 13 4	245 5 10	6,250 7 2	....	4,496 9 1	962 10 11	..	791 3 2	6,250 7 2	40,623	0 2 6
1,066 13 8	....	72 10 7	1,139 8 3	....	952 0 11	187 7 4	..	....	1,139 8 3	7,988	0 2 3
31,198 11 1	4,486 11 1	1,685 3 7	37,370 9 9	19,643 5 7	13,772 9 6	3,163 7 6	..	791 3 2	37,370 9 9	1,02,423	0 5 10
11,312 11 8	96 3 4	168 11 4	11,577 10 4	....	....	....	..	11,577 10 4	11,577 10 4	47,296	0 3 11
3,264 8 6	3,190 1 4	12 1 3	6,466 11 1	....	....	....	..	6,466 11 1	6,466 11 1	14,194	0 6 9
360 0 0	....	....	360 0 0	....	....	360 0 0	..	....	360 0 0	784	0 7 4
2,10,288 0 8	18,700 6 9	13,647 2 5	2,42,635 9 10	1,07,315 2 8	66,962 0 8	19,222 14 11	326 7 0	48,809 0 7	2,42,635 9 10	5,79,601	0 6 8

B.—DISPENSARY VACCINATION.

Statement No. III. showing Dispensary Vaccination in the Bombay Presidency during the year 1879-80.

Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.	
							Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.
								Under 1 year.	1 and under 6.	Total of all Ages.				
1	2	3	4			5	6	7	8	9	10	11	12	13
THE NORTHERN DECCAN REGISTRATION DISTRICT.			Males.	Females.	Total.									
Khándesh Collectorate.														
Párola	..	..	103	124	227	227	238	124	93	217	..	..	95·29	..
Erandol	..	..	211	167	378	378	378	237	130	367	..	..	97·09	..
Dharangaon	..	..	P. 12	13	25	40	25	21	4	25	13	12	100;00	92·30
			R. 10	3	13									
Nandurbár	..	..	88	108	196	196	196	117	70	187	..	..	95·41	..
Bhadgaon	..	..	P. 51	36	87	89	87	18	57	75	2	2	86·21	100·00
			R. 1	1	2									
Shirpur	..	..	112	97	209	209	209	176	29	205	..	..	98·09	..
Chopda	..	..	83	80	163	163	163	113	49	162	..	..	94·39	..
Jalgaon	..	..	75	73	148	148	148	55	66	121	..	..	81·76	..
Total	..	..	P. 735	698	1,433	181	1,444	861	498	1,359	15	14	94·84	93·33
	..	..	R. 11	4	15									
Násik Collectorate.														
Sinnar	..	..	P. 77	82	159	163	159	83	71	154	4	4	96·86	100·00
			R. 4	..	4									
Dindori	..	..	52	47	99	99	99	82	6	88	..	..	88·89	..
Yeola	..	..	P. 97	74	171	176	171	97	46	144	5	3	84·21	60·00
			R. 5	..	5									
Málegaon	..	..	107	117	224	224	224	98	109	207	..	..	92·41	..
Sátana	..	..	75	63	138	138	138	89	47	136	..	..	98·55	..
Peint	..	..	51	53	104	104	104	14	79	100	..	..	96·15	..
Pimpalgaon B.	..	..	17	17	34	34	34	14	10	24	..	..	70·59	..
Total	..	..	P. 476	453	929	134	929	477	368	853	9	7	91·82	77·78
	..	..	R. 9	..	9									
Ahmednagar Collectorate.														
Sangamner	..	..	165	184	349	349	349	163	189	342	..	..	97·99	..
Sheogáon	..	..	P. 43	43	86	87	86	54	22	77	1	1	89·53	100·00
			R. 1	..	1									
Nevása	..	..	70	59	129	129	129	52	67	121	..	..	93·80	..
Total	..	..	P. 278	286	564	188	564	259	278	540	1	1	95·74	100·00
	..	..	R. 1	..	1									
Poona Collectorate.														
Junnar	..	..	159	117	276	276	276	149	126	276	..	..	100·00	..
Indápur	..	..	P. 49	48	97	98	98	69	26	96	1	1	99·00	100·00
			R. 1	..	1									
Khed	..	..	P. 42	59	101	104	101	35	37	73	3	2	72·28	66·67
			R. 2	1	3									
Sirúr	..	..	27	36	63	63	63	10	16	26	..	..	41·27	..
Talegaon Dhamdhera	..	..	P. 33	42	75	76	75	29	9	38	1	..	50·67	..
			R. 1	..	1									
Sásvad	..	..	84	103	187	187	187	109	69	178	..	..	95·19	..
Jejuri	..	..	P. 57	54	111	112	111	80	25	105	1	..	94·59	..
			R. 1	..	1									
Bárámati	..	..	P. 56	69	125	126	128	77	40	117	1	1	93·60	100·00
			R. ..	1	1									
Talegaon Dabhada	..	..	P. 53	57	110	112	110	34	47	81	2	2	73·64	100·00
			R. 1	1	2									
Total	..	..	P. 560	585	1,145	128	1,149	592	395	990	9	6	86·46	66·67
	..	..	R. 6	3	9									
Akalkot	..	..	10	19	29	29	29	26	2	28	..	..	96·55	...
TOTAL FOR THE NORTHERN DECCAN REGISTRATION DISTRICT	..	..	P. 2,059	2,041	4,100	148	4,115	2,215	1,541	3,770	34	28	91·95	82·35
			R. 27	7	34									
THE SOUTHERN DECCAN REGISTRATION DISTRICT.														
Sátára Collectorate.														
Wái	..	..	P. 87	71	158	159	158	87	103	141	1	1	88·61	100·00
			R. 1	..	1									
Pátan	..	..	49	45	94	94	94	70	12	82	..	..	87·23	..
Karád	..	..	154	115	269	269	270	201	59	267	..	..	99·26	..
Islámpur	..	..	P. 139	164	303	306	304	198	98	296	3	3	97·69	100·00
			R. 1	2	3									
Mhasvad	..	..	122	82	204	204	205	107	84	197	..	..	96·57	..
Pusesávli	..	..	49	42	91	91	91	70	16	86	..	..	94·51	..
Tásgaon	..	..	P. 132	134	266	282	268	208	35	243	16	4	91·35	25·00
			R. 11	5	16									
Mahábaleshvar	..	..	32	29	61	61	61	32	28	60	..	..	98·36	..
Total	..	..	P. 764	682	1,446	183	1,451	923	435	1,372	20	8	94·81	40·00
	..	..	R. 18	7	20									

Statement No. III. showing Dispensary Vaccination, &c.—*continued.*

Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.	
							Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.
								Under 1 year.	1 and under 6.	Total of all Ages.				
1	2	3	4			5	6	7	8	9	10	11	12	13
THE SOUTHERN DECCAN REGISTRATION DISTRICT—*continued.*			Males.	Females	Total.									
Belgaum Collectorate. Parasgad	..	..	P. 86 R. 20	74 16	160 36	196	160	62	82	144	36	23	90·00	61·11
Gokák	..	..	99	108	207	207	123	63	186	..	..	89·85	..	
Athni	..	..	83	83	166	166	106	40	147	..	..	88·55	..	
Total	..	..	P. 268 R. 20	265 16	533 36	190	533	291	185	477	36	22	89·49	61·11
Dhárwár Collectorate. Hubli	..	..	8	4	12	12	12	..	..	..	..	..	....	..
Kaládgi Collectorate. Ilkal	..	..	19	14	33	33	33	23	5	28	..	..	84·85	..
Bijapur	..	..	P. 53 R. 2	33 ..	86 2	88	86	34	19	53	2	2	61·63	100·00
Muddebihál	..	..	3	14	17	17	17	15	2	17	..	..	100·00	..
Total	..	..	P. 75 R. 2	61 ..	136 2	46	136	72	26	98	2	2	72·06	100·00
Kolhápur States. Kolhápur	..	..	P. 439 R. 205	390 60	829 265	1,094	829	613	157	770	265	256	92·88	96·60
Gar-Hinglaj	..	..	P. 45 R. 2	37 ..	82 2	84	82	41	36	77	2	2	93·90	100·00
Total	..	..	P. 484 R. 207	427 60	911 267	589	911	654	193	847	267	258	92·97	96·63
Southern Maratha Jaghirs. Mudhol	..	..	93	90	183	183	183	50	90	140	..	..	76·50	..
Miraj	..	..	70	53	123	123	123	66	28	115	..	..	93·50	..
Total	..	..	163	143	306	153	306	136	118	255	..	..	83·33	..
Native States, Total	..	..	P. 647 R. 207	570 60	1,217 267	385	1,217	790	311	1,102	267	258	90·55	96·63
Total for the Southern Deccan Registration District.	..	..	P. 1,762 R. 242	1,582 83	3,344 325	193	3,349	2,076	957	3,049	325	290	91·18	89·23
THE KONKAN REGISTRATION DISTRICT.														
Kánara Collectorate. Kárwár	..	..	P. 151 R. 17	101 4	252 21	273	253	45	127	218	21	15	86·51	71·43
Kumta	..	..	P. 124 R. 31	98 4	222 35	257	229	55	116	178	35	9	80·18	25·71
Honávar	..	..	P. 89 R. 4	53 ..	142 4	146	142	15	78	138	4	4	97·18	100·00
Sirsi	..	..	P. 76 R. 2	64 ..	140 2	141	141	39	80	132	2	2	94·29	100·00
Siddápur	..	..	67	42	109	109	109	5	82	106	..	..	97·25	..
Yellápur	..	..	32	22	54	54	54	9	27	45	..	..	85·19	..
Hallyál	..	..	69	57	126	126	126	70	39	111	..	..	88·10	..
Supa	..	..	11	9	20	20	20	5	6	11	..	..	55·00	..
Mundgod	..	..	27	18	45	45	45	18	21	39	..	..	86·67	..
Total	..	..	P. 646 R. 54	464 8	1,110 62	130	1,119	261	576	979	62	30	88·20	48·39
Ratnágiri Collectorate. Dápoli	..	..	23	36	59	59	67	35	21	56	..	..	94·92	..
Kolába Collectorate. Alíbág	..	..	8	7	15	15	15	6	9	15	..	..	100·00	..
Pen	..	..	P. 46 R. ..	51 1	97 1	98	98	59	35	94	1	1	95·92	100·00
Mahád	..	..	37	59	96	96	96	32	53	85	..	..	88·54	..
Total	..	..	P. 91 R. ..	117 1	208 1	70	209	97	97	194	1	1	93·27	100·00

Statement No. III. showing Dispensary Vaccination, &c.—*continued.*

	Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.	
									Successful.						
				Males.	Females	Total.		Total.	Under 1 year.	1 and under 6.	Total of all Ages.	Total.	Successful.	Primary.	Re-vaccination.
	1	2	3	4			5	6	7	8	9	10	11	12	13
	THE KONKAN REGISTRATION DISTRICT—*continued.*														
Thána Collectorate.	Thána Police Corps	..	..	P 17 / R 8	5 / ..	22 / 8	30	22	9	12	22	8	8	100·00	100·00
	Kalyán	..	..	59	29	68	68	68	22	41	66	..	..	97·06	..
	Bándra	..	..	P 114 / R 2	133 / 3	247 / 5	252	247	102	131	238	5	2	96·36	40·00
	Bhiwndi	..	..	21	27	48	48	48	14	29	43	..	..	89·58	..
	Chinchni	..	..	14	17	31	31	31	8	17	25	..	..	80·64	..
	Kurla	..	..	123	61	184	184	116	40	157	..	..	85·33	..	
	Basseín	..	..	39	48	87	87	87	39	45	84	..	..	96·55	..
	Máhim	..	..	P 38 / R 2	56 / 1	94 / 3	97	103	32	60	92	3	1	97·87	33·33
	Mátherán	..	..	22	17	39	39	39	4	29	33	..	..	84·62	..
	Sháhápur	..	..	P 22 / R 1	21 / ..	43 / 1	44	43	15	27	42	1	1	97·67	100·00
	Total ..	..	..	P 449 / R 13	414 / 4	863 / 17	88	872	361	431	802	17	12	92·93	70·59
Native States.	Sávantvádi State	..	..	P 65 / R 53	70 / 11	135 / 64	199	135	44	75	119	64	16	88·15	25·00
	Total for the Konkan Registration District	..	..	P 1,274 / R 120	1,101 / 24	2,375 / 144	105	2,402	798	1,200	2,150	144	59	90·53	40·97
	THE EASTERN GUJARAT REGISTRATION DISTRICT.														
Surat Collectorate.	Ránder	..	..	115	102	217	217	219	165	48	213	..	..	98·16	..
	Bárdoli	..	..	47	44	91	91	91	76	13	89	..	..	97·80	..
	Mándvi	..	..	33	29	62	62	62	39	21	60	..	..	96·77	..
	Chikhli	..	..	51	30	81	81	81	47	33	80	..	..	98·76	..
	Bulsár	..	..	P 129 / R 2	129 / ..	258 / 2	260	258	90	156	253	2	..	98·06	..
	Párdi	..	..	35	31	66	66	66	34	28	62	..	..	93·94	..
	Kálliawari	..	..	42	24	66	66	66	21	45	66	..	..	100·00	..
	Total ..	..	..	P 452 / R 2	389 / ..	841 / 2	120	843	472	344	823	2	..	97·86	..
Broach Collectorate.	Anklesvar	..	..	84	84	168	168	171	76	85	161	..	..	95·83	..
	Hánsot	..	..	18	24	42	42	42	24	11	35	..	..	83·33	..
	Iláv	..	..	P 28 / R 1	24 / ..	52 / 1	53	52	16	31	47	1	1	90·38	100·00
	Jambusar	..	..	P 90 / R 1	41 / ..	131 / 1	132	131	109	20	129	1	1	98·47	100·00
	Total ..	..	..	P 220 / R 2	173 / ..	393 / 2	99	396	225	147	372	2	2	94·66	100·00
Kaira Collectorate.	Dákor	..	..	P 65 / R 2	59 / 6	124 / 8	132	124	86	32	118	8	6	95·16	75·00
	Kapadvanj	..	..	P 228 / R 2	229 / ..	457 / 2	459	458	313	115	429	2	1	93·87	50·00
	Borsad	..	..	123	92	215	215	215	142	50	192	..	..	89·30	..
	Mehmadabad	..	..	P 154 / R 40	149 / ..	303 / 40	343	303	289	14	303	40	23	100·00	57·50
	Mahudha	..	..	72	73	145	145	145	65	39	105	..	..	72·41	..
	Kaira Jail	..	..	110	1	111	111	111	..	1	1	..	..	0·90	..
	Total ..	..	..	P 752 / R 44	603 / 6	1,355 / 50	234	1,356	895	251	1,148	50	30	84·72	60·00

Statement No. III. showing Dispensary Vaccination, &c.—*continued.*

Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of Persons Vaccinated.			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.	
								Successful.						
							Total.	Under 1 year.	1 and under 6.	Total of all Ages.	Total.	Successful.	Primary.	Re-vaccination.
1	2	3	4			5	6	7	8	9	10	11	12	13
THE EASTERN GUJARA'T REGISTRATION DISTRICT—*continued.*			Males.	Females.	Total.									
Panch Mahals. — Godra	..	..	P. 117 R. ..	149 1	266 1	267	266	204	27	232	1	1	87·22	100·00
Ahmedabad Collectorate. — Dholera	..	..	106	100	206	206	215	132	44	176	..	..	85·44	..
Sánaud	..	..	P. 117 R. 4	113 ..	230 4	234	232	185	37	222	4	..	96·52	..
Paránttj	..	..	133	106	239	239	239	195	42	237	..	..	99·16	..
Khárághoda	..	..	3	4	7	7	7	4	1	5	..	..	71·43	..
Total ..	..	..	P. 359 R. 4	323 ..	682 4	171	693	516	124	640	4	..	92·84	..
Mahi Kántha Agency. — Sádra	..	..	P. 88 R. 28	75 ..	163 28	191	166	121	24	145	28	14	88·26	50·00
TOTAL FOR THE EASTERN GUJARA'T REGISTRATION DISTRICT	..	..	P. 1,988 R. 80	1,712 7	3,700 87	165	3,720	2,433	917	3,360	87	47	90·81	54·02
THE WESTERN GUJARA'T CIRCLE.														
Kátháwár. — Wadhwán	..	..	P. 27 R. 2	19 1	46 3	49	48	27	9	36	3	..	75·26	..
Songad	..	..	10	6	16	16	16	9	5	14	..	..	87·50	..
Mánekváda	..	..	4	5	9	9	9	5	4	9	..	..	100·00	..
Rájkot	..	..	R. 160	7	167	167	..	..	..	..	167	96	..	57·48
Total ..	..	..	P. 41 R. 162	30 8	71 170	60	73	41	18	59	170	96	83·10	56·47
Native States. — Gondal	..	..	172	159	331	331	331	196	109	305	..	..	92·14	..
Upleta	..	..	29	23	52	52	52	22	22	44	..	..	84·61	..
Bháyávadar	..	..	27	27	54	54	54	35	19	54	..	..	100·00	..
Limbdi	..	..	P. 162 R. 8	142 8	304 16	320	304	206	76	284	16	9	93·42	56·25
Total ..	..	..	P. 390 R. 8	351 8	741 16	189	741	459	226	687	16	9	92·71	56·25
TOTAL FOR THE WESTERN GUJARA'T CIRCLE	..	..	P. 431 R. 170	381 16	812 186	125	814	500	244	746	186	105	91·67	56·45
THE SIND REGISTRATION DISTRICT.														
Kurrachee Collectorate. — Manora	..	..	P. 8 R. 2	11 1	19 3	22	19	10	5	15	3	1	78·91	33·33
Keti Bandar	..	..	P. 32 R. 1	30 ..	62 1	63	62	27	28	55	1	1	88·71	100·00
Mirpur Batoro	..	..	P. 53 R. 45	63 ..	116 45	161	117	55	36	91	45	44	78·45	97·78
Tatta	..	..	P. 264 R. 3	95 ..	359 3	362	359	58	293	351	3	3	97·78	100·00
Jerruck	..	..	18	8	26	26	26	10	4	18	..	..	69·23	..
Bulakhan	..	..	11	10	21	21	21	7	12	21	..	..	100·00	..
Schwan	..	..	P. 78 R. 94	63 24	141 119	260	141	77	41	124	119	84	87·94	70·59
Total ..	..	..	P. 654 R. 145	280 26	744 171	131	745	244	419	675	171	133	90·73	77·78
Hyderabad Collectorate. — Tháru Sháh	..	..	P. 30 R. 54	54 3	84 57	141	84	61	6	67	57	29	79·76	50·88
Hála	..	..	P. 31 R. 39	20 ..	51 39	90	53	24	27	51	39	29	100·00	74·36
Alalyar-jo-Tando	..	..	80	45	125	125	125	24	53	81	..	..	64·80	..
Tando	..	..	57	48	105	105	105	50	44	97	..	..	92·38	..
Tando Bago	..	..	20	23	43	43	43	22	19	41	..	..	95·35	..
Tando Adam	..	..	30	17	47	47	47	..	20	30	..	..	63·87	..
Total ..	..	..	P. 248 R. 93	207 3	455 96	92	457	181	169	367	96	58	80·65	60·42

Statement No. III. showing Dispensary Vaccination, &c.—*continued.*

Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of Persons Vaccinated			Average number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.	
							Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.
								Under 1 year.	1 and under 6.	Total of all Ages.				
1	2	3	4			5	6	7	8	9	10	11	12	13
THE SIND REGISTRATION DISTRICT—*continued.*			Males.	Females.	Total.									
Thar and Párkar. — Nagar Párkar	..	..	19	18	37	37	40	25	8	33	..	..	89·22	..
Thar and Párkar. — Mitti	..	..	P. 27	29	56	84	56	39	17	56	28	18	100·00	64·28
			R. 13	15	28									
Thar and Párkar. — Umarkot	..	..	53	45	98	98	60	19	79	..	..	80·61	..	
Thar and Párkar. — Khipra	..	..	16	14	30	30	30	18	10	30	..	..	100·00	..
Total	..	..	P. 115	106	221	62	224	142	54	198	28	18	89·59	64·28
			R. 13	15	28									
Shikárpur Collectorate. — Rohri	..	..	P. 189	161	350	1,882	350	337	13	350	1,532	1,318	100·00	86·03
			R. 499	1,033	1,532									
Shikárpur Collectorate. — Mehar	..	..	P. 49	26	75	88	75	46	19	70	13	8	93·33	61·54
			R. 8	5	13									
Shikárpur Collectorate. — Lárkhána	..	..	5	3	8	8	8	3	1	4	..	..	50·00	..
Total	..	..	P. 243	190	433	659	433	386	33	424	1,545	1,326	97·92	85·83
			R. 507	1,038	1,545									
Mekran Coast. — Guadar	..	..	P. 315	319	634	655	647	28	162	508	21	15	80·13	71·43
			R. 14	7	21									
Total for the Sind Registration District	..	..	P. 1,385	1,102	2,487	207	2,506	981	837	2,172	1,861	1,550	87·33	83·29
			R. 772	1,089	1,861									
THE BARODA CIRCLE.														
Native States. — Petlád	..	..	54	46	100	100	100	87	13	100	..	..	100·00	..
Native States. — Sojitra	..	..	P. 119	81	200	201	200	127	55	187	1	1	93·50	100·00
			R. ..	1	1									
Native States. — Dabhoi	..	..	4	7	11	11	11	4	5	9	..	..	81·82	..
Native States. — Pádra	..	..	128	103	231	231	231	168	19	187	..	..	80·95	..
Native States. — Sinor	..	..	5	3	8	8	8	8	..	8	..	..	100·00	..
Native States. — Pátan	..	..	93	82	175	175	175	173	..	173	..	..	98·86	..
Native States. — Degám	..	..	P. 82	84	166	168	167	92	70	164	2	..	98·79	..
			R. 1	1	2									
Native States. — Visnagar	..	..	61	52	113	113	113	79	26	105	..	..	92·92	..
Native States. — Vadnagar	..	..	76	74	150	150	151	74	63	137	..	..	91·33	..
Native States. — Bijápur	..	..	85	82	167	167	167	108	55	163	..	..	97·60	..
Native States. — Deesa	..	..	4	6	10	10	10	7	3	10	..	..	100·00	..
Native States. — Gandevi	..	..	P. 127	128	255	258	258	179	57	236	3	2	92·55	66·67
			R. ..	3	3									
Native States. — Songad	..	..	29	16	45	45	45	27	14	43	..	..	95·56	..
Native States. — Amreli	..	..	215	134	349	349	352	268	81	349	..	..	100·00	..
Native States. — Okhá Battalion	..	..	40	5	45	45	45	5	6	34	..	..	75·56	..
Native States. — Kodinár	..	..	6	10	16	16	16	3	13	16	..	..	100·00	..
Native States. — Dámnagar	..	..	46	39	85	85	85	50	35	85	..	..	100·00	..
Native States. — Dhári	..	..	4	7	11	11	11	7	3	11	..	..	100·00	..
Total for the Baroda Circle	..	..	P. 1,178	959	2,137	119	2,145	1,466	518	2,017	6	3	94·38	50·00
			R. 1	5	6									
BASSADORE	..	..	30	28	58	58	58	..	14	39	..	..	67·24	..
CIVIL HOSPITAL, MUSCAT.	..	..	53	53	106	106	106	16	87	103	..	..	97·16	..
TOTAL FOR THE — BRITISH TERRITORY	..	..	P. 7,741	6,885	14,626	123	14,709	7,538	5,141	13,249	2,092	1,686	90·59	80·59
			R. 953	1,139	2,092									
TOTAL FOR THE — NATIVE STATES	..	..	P. 2,419	2,074	4,493	153	4,506	2,947	1,174	4,157	551	396	92·52	71·87
			R. 459	92	551									
GRAND TOTAL FOR THE BOMBAY PRESIDENCY	..	..	P. 10,160	8,959	19,119	130	19,215	10,485	6,315	17,406	2,643	2,082	91·04	78·77
			R. 1,412	1,231	2,643									

Comparative Statement No. IV. showing the number of Persons primarily Vaccinated and the number of those Persons who were successfully Vaccinated in each of the undermentioned official years.

Establishments.	Persons Primarily Vaccinated.																			
	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.	Total Number.	Number successfully Vaccinated.
	Years ended 31st March.																			
	1871.		1872.		1873.		1874.		1875.		1876.		1877.		1878.		1879.		1880.	
Government	245,625	229,514	79,022	73,398	3,446	3,012	3,208	2,867	4,517	4,365	4,706	4,552	5,518	5,346	5,472	5,311	4,630	4,444	3,374	3,220
Municipal	41,099	35,055	55,011	44,879	53,415	45,372	51,313	44,129	54,810	51,162	59,392	55,698	61,071	58,300	50,250	46,355	42,211	39,129	48,318	45,069
Local Fund	59,082	55,247	221,483	208,413	309,666	283,655	357,162	326,852	377,558	361,689	375,202	364,503	394,775	382,211	340,998	326,670	304,420	292,640	322,871	312,124
Cantonment	*	*	*	*	*	*	1,103	999	969	906	1,018	965	827	771	845	804	872	846	939	939
Native State	135,977	123,991	152,213	142,039	180,314	163,891	188,788	171,657	209,689	195,729	224,730	211,316	242,891	226,402	246,773	228,333	188,447	174,757	188,196	175,979
Dispensary	9,241	7,894	13,792	11,998	16,685	14,652	18,560	16,403	19,393	17,463	19,954	18,156	19,996	18,486	20,201	17,904	17,887	16,233	19,119	17,406
Army — European	960	960	1,080	1,080	1,517	1,517	1,122	1,122	728	728	825	825	1,973	1,973	1,313	1,313	494	453	635	604
Army — Native	6,598	†	4,352	4,211	4,982	4,627	4,562	4,246	4,153	3,940	4,812	4,541	5,033	4,659	4,203	3,920	3,008	2,719	3,049	2,499
Total ..	496,582	452,661	527,153	486,018	570,025	516,726	625,818	568,275	671,817	635,982	690,639	660,556	732,184	698,148	670,055	630,500	561,969	531,221	586,501	557,840

Note.—Re-vaccinations are wholly excluded from this Statement. * The figures are included in those for the Native Army. † The figures are not available.

No. 2717.

GENERAL DEPARTMENT.

Bombay Castle, 11th September 1880.

Letter from the Sanitary Commissioner for the Government of Bombay, No. 2005 B, dated 10th August 1880—Submitting the Annual Report of his Department for 1879.

RESOLUTION.—The report for 1879 of the Sanitary Commissioner, which was due on 1st June, was received by Government on the 10th August, or 10 days later than it ought to have been despatched by this Government to the Government of India. Even this, however, shows a great improvement on the two preceding years when it was not received till October. If there are any insuperable objections to the submission of this report to Government within the date assigned, Mr. Lumsdaine is requested to state what they are, and to name the date within which he can confidently promise that the report shall each year be sent in to Government.

2. *Section I.—General Population and Vital Statistics.*—The number of births registered among the civil population in 1879 was 287,870 or a rate of 17·74 per mille, as compared with 243,253 births in 1878 which gave a rate of 15·04 per mille. The total number is still lower by 26,937 than the yearly average for the five years 1874 to 1878 inclusive. From 1874 to 1876 the yearly number of births showed a steady increase. In 1877, the year of the famine's chief intensity, there was a considerable diminution, and in 1878 the fall was still more striking. Government are glad to notice that a reaction in the opposite direction has now commenced. Perhaps the chief value of the figures given in the table at para. 3 of the report, lies in the test they afford of the efficiency of birth registration in different districts. Násik comes first with a birth-rate of 27·92 per mille, while the five Districts of Sind are at the bottom of the list. The lowest, Shikárpur, gives a rate of only 5·00 per mille. Registration is also very bad in Broach, Panch Maháls, Sholápur and Kaládgi. It is strange that birth registration in the town of Násik should be so much worse than in the same district; the rate recorded in the former being only 20·46 per mille. Among towns it appears that the registration of Vital Statistics is most efficiently performed in Ahmedabad, which shows a birth and death-rate for the year of 41·31 and 70·61 respectively. The towns of Kaládgi, Godhra and Poona with birth-rates of 5·31, 5·17 and 4·98 respectively seem very low in point of efficiency. In Hyderabad, Jacobabad and Kaládgi with death-rates of 40·71, 46·11 and 43·46 respectively, the registration of deaths seems to be fairly well conducted, but in Poona, which shows a death-rate of only 17·06, the registration of Vital Statistics seems very faulty throughout. Registration does not seem to be as efficient as it might be in Bombay City, where the birth-rate shown for 1879 is 22·25 and the death-rate 34·60. Several towns in the Mofussil show better returns. The total number of deaths registered among the civil population was 387,542 as against 532,951 in 1878, or a rate per mille of 23·88 as against 32·94. The average of the preceding five years was 26·77. The year under review shows, therefore, a marked decrease in the number and ratio of deaths. Whether the decrease is due to an improved state of health on the part of the population generally, or to imperfect registration, the Sanitary Commissioner does not state. It is assumed by Government to be due to the former cause, as a general decline in the efficiency of registration is not known or believed to have occurred, while each of the Sanitary Divisions of the Presidency shows a marked decline in the ratio of deaths as compared with that for the preceding year. Excluding Sind, the ratio of deaths per mille for the year under review was less than in the year preceding in all districts except Ratnágiri and Surat. This is a source of some little surprise when the desolating fever of 1879 in Gujarát is remembered. The greatest number of deaths in any one district occurred in Ahmedabad (31,243), and the lowest (865) on the Upper Sind Frontier. The maximum death-rate in any one month (2·50) was in November, and the minimum (1·59) in April. In 1878, the least healthy month, judging by the death-rate, was August (3·52),

and the most healthy, February (1·97). In October and November 1879 the ratio was evidently increased by the heavy mortality in the Gujarát Districts, which, exclusive of the Panch Mahals which did not suffer equally from fever, show the following death-rates for those months :—

District.	October.	November.
Surat	3·29	4·01
Broach	5·98	8·55
Kaira	7·17	6·70
Ahmedabad	5·03	5·83

No other district shows a higher death-rate than 3·59 for either month.

The following table shows the most fatal month of the year for each district of the Presidency, *i.e.*, the month in which the highest mortality occurred :—

January.	February.	June.	July.	August.	October.	November.	December.
Násik ...	Thar and Párkar.	Kurrachee ...	Ratnágiri ...	Ahmednagar...	Kaira ...	Khándesh .	Poona.
Belgaum ...		Hyderabad ...	.....	Sátára ...		Thána.	
Dhárwár ...		Shikárpur ...	.....	Kaládgi ...		Surat.	
Kánara ...		Upper Sind		Kolába ...		Broach.	
Bombay City.		Frontier ...	Sholápur.			Ahmedabad.	
Panch Mahals.							

Hence it appears that in Sind June is the most unhealthy month, in the Deccan (except Poona and Sholápur) and Southern Marátha Country, January and August show the greatest mortality; while in Khándesh and Gujarát (except Panch Mahals) the end of the rains and commencement of the cold weather is decidedly the most fatal season. Throughout the Presidency generally, the mortality among individuals of 60 years of age and upwards was 119·60 per 1,000; for infants under 1 year the mortality was at the rate of 76·13 per 1,000, the maximum being 458·13 in Bombay City, which represents a rate of 23·66 per cent. The Health Officer for the Bombay Municipality commented in his recent administration report on the "appalling" rate of infant mortality in the City, and these figures show that he had only too good cause for doing so. Looking at deaths, according to caste or class, it appears that the highest death-rate (25·13) per mille was among Hindus, and the lowest (18·10) among Mahomedans. The death-rate for Christians was 24·60. The total number of deaths among Hindus, Mahomedans, and Christians, respectively, was 329,452, 51,461 and 2,609. Out of a total number of 387,542 deaths during the year, fever accounted for 286,526 or 74 per cent., bowel complaints for 26,349 or nearly 7 per cent., cholera for 6,937 or nearly 2 per cent., and "other causes" for 59,467 or 15 per cent. The specific causes of death will be more particularly referred to in the next paragraph. The lapse of the Peint State has added another to the number of rural circles, and there are now 223 with an aggregate population of 14,341,379. Of Town Circles and Cantonments there are 72 with a population of 1,974,590.

3. *Section II.—History of Chief Diseases.*—There were 6,937 deaths from cholera, or a ratio of 0·43 per mille of population during the year under review, as compared with 46,743 in 1878, showing a decrease of 39,806. Of the total number, 4,683 occurred in the four months from June to September inclusive. The maximum mortality occurred in June, which, judging from the mean monthly number of deaths for the preceding thirteen years, is usually the month during which cholera is most severe. 4,140 of the 6,937 deaths from cholera, or 59·68 per cent., occurred in Sind, while 96 per cent. of the deaths in Sind took place in the three districts—Kurrachee, Hyderabad, and Shikárpur. Thar and Párkar and the Upper Sind Frontier escaped with 173 deaths only. In the rest of the Presidency, Thána shows the greatest number of deaths (770); while Surat (509), Bombay City (323), and Ahmedabad (274), also suffered to some extent. The Sanitary Commissioner's theory is that a severe cholera epidemic occurs every three years, and that according to this "rhythmic sur-

gence" of the cholera wave, the year 1881 is likely to be the next in which the disease will prevail to an epidemic extent.

The reported deaths from small-pox were only 1,156, or 3,319 less than those in 1878, and 9,775 less than the mean annual number for the preceding 13 years. The returns for 1879 show, therefore, a remarkable immunity from small-pox. Bombay City shows by far the largest number of deaths, viz., 478, which amounts to 41 per cent. of the total number that occurred; while in Shikárpur there were 283 deaths or 24 per cent. of the whole. In no other district or town did the number of deaths reach 100. During the past 14 years the highest mortality has always been in March, April, or May.

The deaths from fever were 286,526 or less by 70,850 than in 1878. In the Deccan Districts including Khándesh, the Southern Marátha Country and the Konkan except Ratnágiri and Kolába, there was a marked abatement of fever as compared with the previous year; in Sind there was scarcely any change; but in Gujarát, excepting Broach and the Panch Maháls, there was a heavy increase in the mortality from fever. The deaths in Surat, Kaira, and Ahmedabad were 65,711 in number as compared with 57,875 in 1878. The most striking rise in any one district occurred in Ratnágiri, where the deaths were 19,955 against 10,667 in 1878. The total deaths from fever in 1879 exceeded the mean of the previous thirteen years by 100,165.

Deaths from bowel complaints were 26,349, or 14,816 less than in 1878. There was a general diminution, comprising almost every district in the Presidency, in deaths from this cause as compared with the mean for the previous five years. August and September were the most fatal months.

There were 7,107 deaths from injuries, that is, accident or violence, or 443 less than in 1878. Drowning accounted for the large number of 3,739 or 52 per cent. of the whole, snake-bite for 1,044, wild beasts for 134, and hanging for 264; 2,783 out of the 3,739 deaths from drowning are said to have been accidental, and 2,099 of the deaths from drowning, of which 1,446 were accidental, occurred in wells. The Sanitary Commissioner thinks that all wells that are not too large ought to be covered in, a suggestion which might indeed be followed with respect to village wells, but which it would be difficult to apply to wells outside a village, in garden-land and elsewhere.

The tabular statement, at pages 42 and 43 of Mr. Lumsdaine's report, gives a very clear and interesting classification of the different causes to which the deaths from injuries that have occurred during the year are due. 21 deaths, of which 7 were in Dhárwár, are attributed to *accidental* hanging, which it does not seem easy to account for, at least to such an extent. Of the 1,044 deaths from snake-bite 471 occurred in Hyderabad, Ratnágiri, and Thána; and of the 134 from wild beasts 53 were in Hyderabad, Thána, and Broach.

4. *Section III.—General History of Vaccination.*—There have been several changes during the year in the *personnel* of the vaccinating staff, and the number of employés in the department has been increased by 1 Superintendent of Vaccination, 1 Inspector, 7 Vaccinators and 7 Peons, or 16 persons in all.

The Local Fund Committees of several districts have voted grants for the entertainment of additional vaccinators who were required, and it is hoped that their example will speedily be followed in the districts noted in the margin, where the number of vaccinators is reported to be below the requisite strength. The number of primary operations in 1879-80 was 586,501 as against 561,969 in 1878-79, while in re-vaccinations there was a decrease from 69,177 to 63,122. It is to be remembered that vaccination returns were for the financial and not the calendar year. Primary operations, though showing an excess of 24,532 over those for the previous year, were below the numbers for 1873-74, 1874-75, 1875-76, 1876-77, and 1877-78, or the five years before it. The highest number of operations yet recorded (732,184) was in 1876-77, the year of the famine's chief intensity. 557,840 or 95·11 per cent. of the primary vaccinations in the year under review were successful, showing an improvement over 1878-79 and 1877-78 when the percentage

Poona.	Broach.
Kaládgi.	Kaira.
Kolába.	Kurrachee.

of successful operations was 94·53 and 94·11 respectively. Of the 63,122 re-vaccinations, 45,435 or 71·98 per cent. were successful. The percentage of success on primary operations and re-vaccinations taken together was 92·87, which is better than the result for the two preceding years, but below the returns for the three years previous to them. On the whole, however, in spite of occasional fluctuations, a steady improvement during the last ten years is perceptible. In primary operations and re-vaccinations taken together, there has been an increase in all registration circles and districts, excepting those of Eastern and Western Gujarát and the Native Army. In the two former the decrease amounts to 19,161, and is attributed to the effects of previous bad seasons, and the prevalence of severe fever. In the Native Army the decrease was 399, and needs no comment. The highest percentage rate of increase is in Cutch and the British Army. The highest increase of actual numbers primarily vaccinated is in the Northern Deccan Registration District. The highest percentage rate of successful primary operations belongs to the Eastern Gujarát Registration District, close after which come the Northern Deccan and the Konkan Registration Districts and the Baroda Circle. The net result of the year's work was that 22·26 persons per mille of population were primarily vaccinated with success. The English lymph received during the year does not appear to have been exceedingly successful. Animal vaccination was carried on during the year in Bombay, Poona, and Kurrachee. In Bombay animal lymph alone is used; in Poona and Kurrachee both animal and human lymph are in use, and throughout the rest of the Presidency vaccination is carried on from arm to arm with human lymph. The total cost of the department for the whole Presidency was Rs. 2,42,635-9-10 which represents a cost of As. 6-8 for each successful case. Deducting the pay of the Deputy Sanitary Commissioners and Superintendents, the cost was Rs. 1,95,775, as against Rs. 1,91,184 in the previous year, and each successful case cost As. 5-5 as against As. 5-6. Mr. Lumsdaine comments shortly in his 96th paragraph on the working of the Compulsory Vaccination Act (Bombay Act I of 1877) in the City of Bombay, which he considers to have been a fair success, though serious shortcomings are to be found in registration. This matter is now separately before Government, and need not be dwelt on here. It is not understood why it has been necessary to give up animal vaccination in Kurrachee "in deference to the prejudices of the Hindus" when no such obstacle has arisen in Bombay. With a few exceptions, the conduct of the vaccinators throughout the Presidency has been good during the year under review. The superior officers of the department have shown commendable zeal and energy.

5. *Section IV.—Sanitary Works (Military).*—It is not necessary that Government in this Department should dwell at length on the Cantonment reports of Executive Engineers, which are comprised in this section. The actual outlay on Military works of a sanitary nature in 1879 was Rs. 2,61,390 as against Rs. 7,01,148 in 1878. More than half of the total expenditure was incurred at Mhow in building barracks for the Horse Artillery. Rs. 56,080 were spent at Aden on stabling for cavalry, and barracks for European Infantry, and smaller sums at Ahmedabad and Deesa on Native Infantry Lines, and barracks for British troops.

6. *Section V.—Sanitary Works (Civil).*—This section gives a list of sanitary works undertaken in 1879 by Municipalities and Local Fund Committees. The first entry, which relates to the Municipality of Jalgaon, is somewhat confusing, for it shows that while that Municipality realized an income during the year of only Rs. 17,742, its expenditure amounted to Rs. 85,214, of which Rs. 71,255 was spent on conservancy. A note should have been added, specifying that the expenditure on the Mehrun tank was met by a loan from Government. Considerable sums were spent on conservancy in 1879 in many districts, notably Khándesh, Surat, Ahmedabad, Poona and Sholápur. Government will be glad to learn that the *peo* or pit privies in Belgaum have been entirely superseded by others of a better class; but discretion must be exercised in effecting the change. In Sholápur the new water-supply scheme is in progress, and will doubtless, when complete, prove as valuable as has been anticipated. The chief sanitary wants throughout the Municipalities of the Presidency appear to be water-supply, drainage, and latrines. As regards the last, the descriptions, diagrams and sugges-

tions contained at pages 115 to 118 (Section VI.) of Mr. Lumsdaine's report are strongly recommended to the attention of all Collectors.

7. *Section VI.—General Remarks.*—This section, which embraces pages 107 to 165 of Mr. Lumsdaine's report comprises a most interesting and valuable commentary upon a variety of important Sanitary questions, viz. :—

Village conservancy,
Privy accommodation,
Disposal of refuse,
Water-supply,
Water analysis,
Liquid waste from barracks,

together with a brief review of the measures for famine relief which were undertaken during the year, including a sketch of the various diseases which principally affected the famine-stricken tracts, and an account of the rat plague written by the Reverend Mr. Fairbank, and quoted by Mr. Lumsdaine. There are also several paragraphs dealing with questions of military sanitation. The whole is accompanied by various drawings and diagrams. It is quite impossible for Government within the limits of this Resolution to review, as they could wish to do, this portion of Mr. Lumsdaine's report, which forms in fact a compendium of advice upon all the principal sanitary questions which come before District Officers for disposal, and as such His Excellency in Council commends it to the most careful attention of all.

8. Mr. Lumsdaine somewhat unnecessarily refers in his final paragraph to a complaint made in the Government Resolution reviewing his report last year, of an absence of suggestion and comment upon the statistics then submitted which characterized it. He considers that suggestion and comment are impossible, but his present report, which is full of valuable suggestions, has sufficiently proved the justice of the remark then made, and His Excellency in Council has only to add that Mr. Lumsdaine has redeemed in the fullest manner his pledge that he would submit a more interesting report this year, and deserves to be highly commended for the zeal with which he has discharged his duties, and the ability with which he has placed the results of them before Government.

JOHN NUGENT,
Acting Secretary to Government.

To

The Sanitary Commissioner,
The Surgeon General with the Government of Bombay,
The Military Department of the Secretariat,
The Judicial Department of the Secretariat,
The Revenue Department of the Secretariat,
The Political Department of the Secretariat,
The Public Works Department of the Secretariat,
The Commissioner in Sind,
The Commissioner, N. D.,
The Commissioner, C. D.,
The Commissioner, S. D.,
All Collectors, including Collectors and Superintendents in Sind,
The Accountant General,
The Municipal Commissioner for the City of Bombay,
The Compiler, Bombay Gazetteer,
The Compiler, General Administration Report for 1879-80.

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